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United States.

FUR SEAL ARBITRATION.

PROCEEDINGS

OF THE

TRIBUNAL OF ARBITRATION,

CONVENED AT PARIS

UNDER THE

TREATY BETWEEN THE UNITED STATES OF AMERICA AND GREAT BRITAIN CONCLUDED AT WASHINGTON FEBRUARY 20, 1892,

FOR THE

DETERMINATION OF QUESTIONS BETWEEN THE TWO GOVERNMENTS CONCERNING THE JURISDICTIONAL RIGHTS OF THE UNITED STATES

IN THE

WATERS OF BERING SEA.

VOLUME VI.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1895.

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UNITED STATES. No. 2 (1893).

BEHRING SEA ARBITRATION.

REPORT

OF

THE BEHRING SEA COMMISSION,

AND

REPORT OF BRITISH COMMISSIONERS OF JUNE 21, 1892.

WITH FIVE MAPS AND DIAGRAMS, AND APPENDICES.

PRESENTED TO BOTH HOUSES OF PARLIAMENT BY COMMAND OF HER MAJESTY.

MARCH, 1893.

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BEHRING SEA COMMISSION.

INSTRUCTIONS TO BRITISH COMMISSIONERS.

No. 1.

The Marquis of Salisbury to Sir G. Baden-Powell and Dr. Dawson.

FOREIGN OFFICE, *June 24, 1891.*

GENTLEMEN: The Queen having been graciously pleased to appoint you to be her Commissioners for the purpose of inquiring into the conditions of seal life in Behring Sea and other parts of the North Pacific Ocean, I transmit to you herewith Her Majesty's Commission under the Sign Manual to that effect.

The main object of your inquiry will be to ascertain, "What international arrangements, if any, are necessary between Great Britain and the United States, and Russia or any other Power, for the purpose of preserving the fur-seal race in Behring Sea from extermination?"

Her Majesty's Government have proposed to the United States that the investigation should be conducted by a Commission to consist of four experts, of whom two shall be nominated by each Government, and a Chairman, who shall be nominated by Arbitrators.

If the Government of the United States agree to this proposal, you will be the Delegates who will represent Great Britain in the Commission.

But, in the meanwhile, it is desirable that you should at once commence your examination of the question, and that for that purpose you should proceed as soon as you conveniently can to Vancouver, from whence the Lords Commissioners of the Admiralty have been requested to provide for your conveyance to the various sealing grounds and other places which it may be expedient for you to visit.

Application has been made to the United States Government for permission for you to visit the seal islands under their jurisdiction, and a similar request will be addressed to the Russian Government in the event of your finding it necessary to visit the Commander Islands and other Russian sealing grounds.

Your attention should be particularly devoted to ascertaining—

1. The actual facts as regards the alleged serious diminution of seal life on the Pribyloff Islands, the date at which such diminution began, the rate of its progress, and any previous instance of a similar occurrence.

2. The causes of such diminution; whether, and to what extent, it is attributable—

(*a.*) To a migration of the seals to other rookeries.

(*b.*) To the method of killing pursued on the islands themselves.

(c.) To the increase of sealing upon the high seas, and the manner in which it is pursued.

I need scarcely remind you that your investigation should be carried on with strict impartiality, that you should neglect no sources of information which may be likely to assist you in arriving at a sound conclusion, and that great care should be taken to sift the evidence that is brought before you.

It is equally to the interest of all the Governments concerned in the sealing industry that it should be protected from all serious risk of extinction in consequence of the use of wasteful and injudicious methods.

You will be provided with all the documentary evidence in the possession of this Department which is likely to be of assistance to you in the prosecution of your inquiry.

Mr. A. Froude has been appointed to be your Secretary, and will accompany you on your tour.

vi Separate despatches will be addressed to you with regard to the expenses of your mission, and the form in which your correspondence with this Office should be conducted.

I am, &c.

(Signed) SALISBURY.

[Inclosure in No. 1.]

Commission passed under the Royal Sign Manual and Signet, appointing Sir George Smyth Baden-Powell, K. C. M. G., M. P., and George Mercer Dawson, LL. D., F. R. S., to undertake an inquiry into the Conditions of Seal Life and the precautions necessary for preventing the extermination of the Fur-seal Species in Behring Sea and other parts of the North Pacific Ocean.

Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, Empress of India, &c., to all and singular to whom these presents shall come, greeting!

Whereas, we have deemed it expedient that Commissioners should be appointed for the purpose of inquiry into the conditions of seal life and the precautions necessary for preventing the extermination of the fur-seal species in Behring Sea and other parts of the North Pacific Ocean:

Now, know ye, that we, reposing especial trust and confidence in the diligence, skill, and integrity of our trusty and well-beloved Sir George Smyth Baden-Powell, Knight Commander of Our Most Distinguished Order of St. Michael and St. George, Member of Parliament; and of our trusty and well-beloved Professor George Mercer Dawson, Assistant Director and Geologist of the Canadian Geological and Natural History Survey, have nominated, constituted, and appointed, and do by these presents nominate, constitute, and appoint them our Commissioners to undertake the inquiry aforesaid:

And we do hereby give to our said Commissioners full power and authority to do and perform all acts, matters, and things which may be necessary and proper for duly carrying into effect the object of this our Commission.

In witness whereof we have signed these presents with our Royal hand.

Given at our Court at Windsor Castle, the 22nd day of June, in the year of our Lord 1891, and in the fifty-fifth year of our reign.

By Her Majesty's command,

(Signed) SALISBURY.

No. 2.

The Marquis of Salisbury to the Behring Sea Commissioners.

FOREIGN OFFICE, *January 15, 1892.*

GENTLEMEN: I have to inform you that Her Majesty's Minister at Washington has sent home the text of seven Articles, signed by himself and Mr. Blaine on the 18th ultimo, which are to be embodied in a formal

Agreement between Her Majesty's Government and that of the United States for referring to Arbitrators certain questions at issue between the two Governments in regard to the jurisdiction claimed by the latter over the waters of Behring Sea in connection with the fur-seal fisheries therein.

Sir J. Pauncefote has also forwarded the text of an Agreement signed on the same day for the appointment of two Commissioners by Her Majesty's Government and that of the United States respectively, to investigate, conjointly with the Commissioners of the other Government, all the facts relating to seal life in Behring Sea, and the necessary measures for its proper protection and preservation.

A copy of Sir J. Pauncefote's despatch, inclosing both these documents, is forwarded herewith for your information.

I now transmit the Queen's Commission under the Sign Manual appointing you to be Her Majesty's Commissioners in accordance with the provisions of the Joint Commission Agreement, and I request that you will proceed to Washington as soon as you can conveniently do so, in order to draw up the Report indicated in the second paragraph of the agreement.

vii The information which has been obtained by your American colleagues and yourselves during your recent visit to Behring Sea will supply you with material for the preparation of your Report.

There are, however, a few points to which Her Majesty's Government consider it desirable that your special attention should be directed.

You will observe that it is intended that the Report of the Joint Commissioners shall embrace recommendations as to all measures that should be adopted for the preservation of seal life. For this purpose, it will be necessary to consider what regulations may seem advisable, whether within the jurisdictional limits of the United States and Canada, or outside those limits. The Regulations which the Commissioners may recommend for adoption within the respective jurisdictions of the two countries will, of course, be matter for the consideration of the respective Governments, while the regulations affecting waters outside the territorial limits will have to be considered under clause 6 of the Arbitration Agreement in the event of a decision being given by the Arbitrators against the claim of exclusive jurisdiction put forward on behalf of the United States.

The Report is to be presented in the first instance to the two Governments for their consideration, and is subsequently to be laid by those Governments before the Arbitrators to assist them in determining the more restricted question as to what, if any, Regulations are essential for the protection of the fur-bearing seals outside the territorial jurisdiction of th e two countries.

In the event any points arising on which the Commissioners are unable to arrive at an understanding, they should report jointly or severally to each Government on such points.

In conclusion, I have to state that Her Majesty's Government place every reliance on your tact and discretion in the conduct of your investigations with your American colleagues, who will, no doubt, be equally desirous with yourselves of arriving at a common agreement on the questions to be discussed.

I am, &c.

(Signed) SALISBURY.

[Inclosure in No. 2.]

Commission passed under the Royal Sign Manual and Signet appointing Sir George Smyth Baden-Powell, K. C. M. G., M. P., and Professor George Mercer Dawson, Assistant Director and Geologist of the Canadian Geological and Natural History Survey, to be Her Majesty's Commissioners under the Behring Sea Joint Commission Agreement between Great Britain and the United States of the 18th December, 1891.

Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, Empress of India, &c., &c., &c., to all and singular to whom these presents shall come, greeting!

Whereas we have deemed it expedient that Commissioners should be appointed for the purpose of inquiring into the conditions of seal life in Behring Sea and the measures necessary for its proper protection and preservation under the Agreement between Great Britain and the United States of America of the 18th December, 1891.

Now know ye that we, reposing especial trust and confidence in the diligence, skill, and integrity of our trusty and well-beloved Sir George Smyth Baden-Powell, Knight Commander of our most distinguished Order of St. Michael and St. George, Member of Parliament, and of our trusty and well-beloved Professor George Mercer Dawson, Assistant Director and Geologist of the Canadian Geological and Natural History Survey, have nominated, constituted, and appointed, and do by these presents nominate, constitute, and appoint them our Commissioners to undertake the inquiry aforesaid.

And we do hereby give to our said Commissioners Full Power and authority to do and perform all acts, matters, and things which may be necessary and proper for duly carrying into effect the object of this our Commission.

In witness whereof we have signed these presents with our Royal hand.

Given at our Court at Osborne the 1st day of January in the year of our Lord 1892, and in the 55th year of our reign.

By Her Majesty's command,

(Countersigned) SALISBURY.

BEHRING SEA COMMISSION.

JOINT REPORT.

No. 3.

The Behring Sea Commissioners to the Marquis of Salisbury.—(Received March 19.)

WASHINGTON, *March 4, 1892.*

MY LORD: We have the honour to transmit herewith a Report signed this day by the Commissioners of Great Britain and the United States appointed to investigate the condition of seal life in the North Pacific Ocean.

Under the instructions contained in your Lordship's despatches of the 24th June, 1891, and of the 15th January last, and in accordance with the terms of the Agreement arranged between the two Governments, the requisite investigations have been carried out; the Joint Report, as now submitted, has been agreed to; and we are at present engaged in drawing up our "several" Reports dealing with those facts of seal life, and measures necessary for its proper protection and preservation, on which no agreement was come to in the Joint Report.

We have, &c.

(Signed) GEORGE BADEN-POWELL.
GEORGE M. DAWSON.

[Inclosure in No. 3.]

BEHRING SEA COMMISSION JOINT REPORT.

An Agreement having been entered into between the Governments of Great Britain and the United States to the effect that—

"Each Government shall appoint two Commissioners to investigate, conjointly with the Commissioners of the other Government, all the facts having relation to seal life in Behring Sea, and the measures necessary for its proper protection and preservation;

"The four Commissioners shall, so far as they may be able to agree, make a Joint Report to each of the two Governments; and they shall also report, either jointly or severally, to each Government on any points upon which they may be unable to agree;

"These Reports shall not be made public until they shall be submitted to the Arbitrators, or it shall appear that the contingency of their being used by the Arbitrators cannot arise;"

And we, in accordance with the above Agreement, having been duly commissioned by our respective Governments, and having communicated to each other our respective powers, found in good and due form, have agreed to the following Report:

1. The joint investigation has been carried out by us, and we have utilized all sources of information available.

2. The several breeding-places on the Pribyloff Islands have been examined, and the general management and methods for taking the seals upon the islands have been investigated.

3. In regard to the distribution and habits of the fur-seal when seen at sea, information based on the observations recorded by the cruizers of the United States
2 and Great Britain, engaged in carrying out the *modus vivendi* of 1891, has been exchanged for the purpose of enabling general conclusions to be arrived at on these points.

4. Meetings of the Joint Commission were held in Washington, beginning on Monday, the 8th February, and continuing until Friday, the 4th March, 1892. As a result of these meetings, we find ourselves in accord on the following propositions:

5. We are in thorough agreement that, for industrial, as well as for other obvious reasons, it is incumbent upon all nations, and particularly upon those having direct commercial interests in fur-seals, to provide for their proper protection and preservation.

6. Our joint and several investigations have led us to certain conclusions, in the first place, in regard to the facts of seal life, including both the existing conditions and their causes; and, in the second place, in regard to such remedies as may be necessary to secure the fur-seal against depletion or commercial extermination.

7. We find that, since the Alaska purchase, a marked diminution in the number of seals on, and habitually resorting to, the Pribyloff Islands has taken place; that it has been cumulative in effect, and that it is the result of excessive killing by man.

8. Finding that considerable difference of opinion exists on certain fundamental propositions, which renders it impossible in a satisfactory manner to express our views in a Joint Report, we have agreed that we can most conveniently state our respective conclusions on these matters in the "several" Reports which it is provided may be submitted to our respective Governments.

Signed in duplicate at the city of Washington this 4th day of March, 1892.

(Signed) GEORGE SMYTH BADEN-POWELL.
GEORGE MERCER DAWSON.
THOMAS CORWIN MENDENHALL.
CLINTON HART MERRIAM.

(Signed) ASHLEY ANTHONY FROUDE, } *Joint Secretaries.*
JOSEPH STANLEY-BROWN, }

REPORT OF THE BRITISH BEHRING SEA COMMISSIONERS.

No. 4.

The Behring Sea Commissioners to the Marquis of Salisbury.—(Received August 14.)

FOREIGN OFFICE, *August 13, 1892.*

MY LORD: With reference to our despatch of the 4th March, 1892, inclosing the Joint Report of the Joint Commission, we now have the honour to submit, as the "several" Report contemplated in that despatch, the Report which we have had the honour to make to Her Majesty the Queen under the Commission appointing us to investigate seal life in Behring Sea.

We have, &c.

(Signed) GEORGE BADEN-POWELL.
GEORGE M. DAWSON.

[Inclosure in No. 4.]

REPORT.

To the Queen's Most Excellent Majesty.

MAY IT PLEASE YOUR MAJESTY,

We, your Majesty's Commissioners, appointed to undertake an inquiry into the conditions of seal life and the precautions necessary for preventing the extermination of the fur-seal species in Behring Sea and other parts of the North Pacific Ocean, beg to submit the following Report.

2. The main object of our inquiry was to ascertain what international arrangements, if any, were necessary between Great Britain and the United States and Russia, or any other Power, for the purpose of preserving the fur-seal race from extermination.

3. We were further instructed that Her Majesty had proposed to the President of the United States that the investigation should be conducted by a Joint Commission of the two nations, and that, on the conclusion of an Agreement providing for this, we were to be the Delegates who would represent Great Britain on the Commission.

4. It was also understood that the investigations and conclusions of this Joint Commission would be ultimately laid before the Arbitrators, who were to adjudicate on the international rights involved, and on the establishment of Regulations for the proper protection and preservation of the fur-seal in or habitually resorting to the Behring Sea.

5. Wherefore, in carrying out the terms of our Commission, it has been our object to acquire and record the most complete information available, in order to promote, in the true interests of all concerned, an equitable, impartial, and mutually satisfactory adjustment of the questions at issue.

6. The necessary means of transport over the North Pacific Ocean was provided for us by the Lord Commissioners of the Admiralty, and the requisite permission to visit and examine the seal rookeries situated in American or Russian territory was obtained at our request from the respective Governments.

7. We formed complete plans for visiting such places situated in, and such areas of the North Pacific Ocean, and holding personal interviews with such persons as
4 should satisfy us that we had neglected no source of information which might be likely to assist us in arriving at sound conclusions.

8. Care was taken before commencing our local investigations to complete our personal knowledge of all documentary evidence to which we could procure access, including the previous official correspondence, and a mass of public and private publications, descriptions, records, and opinions.

9. Requests for information were also addressed to several countries outside the probable scope of our personal inquiries, from which collateral information of importance could be derived. With the aid of the Canadian and Imperial Governments, a series of questions were sent to the various Governments who now hold the chief resorts of the fur-seal in the Southern Hemisphere, namely, the Argentine, Uruguayan, Chilean, and Brazilian Republics, and the Colonies of the Falkland Islands, the Cape of Good Hope, Tasmania, New South Wales, Victoria, and New Zealand.

10. Inquiries were also made for information in regard to the North Pacific seal fisheries to the Governments of Russia and Japan, to Her Britannic Majesty's Consuls at Shanghae, Canton, Honolulu, and San Francisco, and to the Canadian Indian Agents along the coast of British Columbia.

11. In regard to personal work, a brief account of our proceedings will explain the plan of action adopted, and we append a Chart of our track. From the 6th to the 9th July we consulted with the Canadian Ministers in Ottawa; we then crossed the continent by train, and at Vancouver and Victoria held prearranged interviews with those who were engaged in the practical work of sealing, and with the Commander-in-chief of the Pacific Station and the port authorities. So soon as the chartered steamer "Danube" could be got ready for sea, we left on a direct course for the port of Iliuliuk, in Unalaska Island.

12. The "Danube" made the passage of about 1,400 miles in seven and a-half days. After consulting at Unalaska with the Senior Naval Officer, Commander Turner, of Her Majesty's ship "Nymphe," we made the best of our way to the Pribyloff Islands, where we spent several days carrying out our first inspection of the seal rookeries in company with Professor Mendenhall and Dr. Merriam, the Commissioners-designate of the United States, every hospitality and courtesy being afforded by the officials both of the Government and of the lessees of the islands.

13. At this date the rookeries were still at their fullest, and the organization had not yet broken up. After careful inquiry into the various questions connected with the habits and treatment of the seals on these islands, we started on the 6th August on a cruize of 1,450 miles to the eastward and northward in company with her Majesty's ship "Pheasant," to satisfy ourselves as to the limits of the range of the fur-seal in those parts of Behring Sea. We visited the native and other Settlements on Nunivak Island, Cape Vancouver, St. Matthew Island, St. Lawrence Island, and Plover Bay in Eastern Siberia, near the entrance of Behring Straits, returning thence for a second inspection of the Pribyloff rookeries and to note the difference in their appearance after a fortnight's interval.

14. Thence we proceeded to Iliuliuk Harbour, Unalaska, to communicate by appointment with the Commanding Officers of the English and United States war-ships as to future movements. Leaving that port on the 24th August for the westward we cruized along the Aleutian chain, calling at the Islands of Atka and Attu, on which are the only remaining native Settlements in the western part of the Aleutian chain.

15. We then crossed to the Commander Islands, and there received from the Russian authorities every facility and courtesy in our task of learning all we could concerning seal life on those islands. Thence we proceeded down the coast of Kamschatka to Petropaulouski, where again the Russian authorities gave us every information. On this cruize Her Majesty's ship "Porpoise," sailing in company, proved of the greatest assistance.

16. Leaving Petropaulouski on the 10th September our course was shaped for the Pribyloff Islands, so as to strike them from a westerly direction, and continue across that portion of Behring Sea our observations of seals seen at sea. A third and final examination of the Pribyloff rookeries was then made after a further interval of twenty-six days, and Unalaska was again reached on the 17th September.

17. Leaving Behring Sea on the 20th September, we visited Kadiak Island, Sitka, and Shakan, making inquiries of both the native and White residents as to the fur-seal fishery in this distant territory of the United States. Continuing our cruize of investigation, we called at the following places on the coast of British Columbia, viz., Port Simpson, Metla-katla, Port Essington, Masset (Queen Charlotte Islands),
Bella-Bella, Nawitti, Clayoquot Sound, and Barclay Sound, where, by per-
5 sonal inquiries, we were enabled to amplify the written statements which, in compliance with our previous request, had been forwarded to us by the Indian agents on the coast. The Indian Settlement at Neah Bay, on the United States shore of the Straits of Fuca, was also visited, where we likewise obtained valuable information.

18. The facts thus obtained afforded a direct knowledge of the fur-sealing industry, both past and present, as it affects the Indians of South-east Alaska and British Columbia.

19. We completed our local investigations by obtaining from the sealers in Victoria, Vancouver, and Seattle, further evidence as to their opinions and wishes, thus concluding our task by obtaining authoritatively the views of all persons connected with the fur-seal fishery on the facts of seal life and on the protective measures they would favour.

20. The cruize in the North Pacific occupied nearly three months, and the log shows a distance covered of more than 9,000 miles.

21. We were thus enabled to examine for ourselves all the principal seal rookeries, and especially to inspect the typical rookeries on the Pribyloff Islands at three different seasons, at the widest intervals of time possible within the period at our command: to learn, by personal inquiry, knowledge of the limits eastward, northward, and westward of the present habitat of the fur-seal, and to satisfy ourselves as to the peculiar features of the localities which the fur-seal did or did not select as shore resorts.

22. In regard to the important point of the facts and reasons of the presence of the fur-seal in particular portions of the ocean at particular seasons of the year, a point on which we could find little or no previous descriptions or recorded observations, records were collated from schooners engaged in sealing, and for 1891 we formulated a plan of seal logs and seal track-charts based on recorded observations of seals seen at sea, which has been very efficiently carried out on the British men-of-war "Nymphe," "Porpoise," and "Pheasant," and on our own chartered steamer, the "Danube,"—similar work having also been carried on by the United States men-of-war and revenue-cutters employed in Behring Sea during the same season. For this purpose also special inquiries were made as to the kinds of fish constituting the favourite food of the fur-seal. Photographs were also taken by us of the seals, their breeding places, and surroundings.

23. It may be observed further, that in obtaining evidence from persons of experience or knowledge of the subject, we adopted, in general, the informal plan of free interviews and independent conversation. In this way we acquired very distinct and trustworthy knowledge of their opinions and experiences.

24. The witnesses who thus gave evidence included officials of the Governments and the Companies, and ex-officials now otherwise employed, owners, captains and hunters engaged in pelagic sealing; natives, chiefly Aluet and Russian half-breeds, engaged in killing and skinning seals on the Pribyloff Islands; natives, such as Indians, Innuits, and Aluets, who habitually hunt and kill fur-seals, and merchants and others connected with the trade in furs.

25. In the following statement of the results of our investigations, we propose, first of all, to present in summary, in Part I, a general view of the conclusions at which we have arrived as to the condition of seal life in the North Pacific Ocean, and as to the measures necessary for the preservation of the fur-seal industry.

We would then, in Part II, deal in a more systematic manner and in detail with the various divisions of the subject, and subsequently give, as Appendices, such correspondence and statistics as may be needed to complete our account of the subject under investigation.

SUMMARY OF FACTS AND CONCLUSIONS.

I.—THE FORMER, PRESENT, AND PROSPECTIVE CONDITION OF THE FUR-SEAL FISHERY IN THE NORTH PACIFIC OCEAN.

(A.)—*General Conditions of Seal Life.*

Habits of the fur-seal.

26. The fur-seal of the North Pacific Ocean is an animal in its nature essentially pelagic, which, during the greater part of each year, has no occasion to seek the land, and very rarely does so. For some portion of the year, however, it naturally resorts to certain littoral breeding places, where the young are brought forth and suckled on land. It is gregarious in habit, and, though seldom found in defined schools or compact bodies at sea, congregates in large numbers at the breeding places. Throughout the breeding season, the adults of both sexes—if not entirely, at least, for very considerable periods—abstain from food, but during the remainder of the year the seals are notably influenced in their movements by those of the food-fishes upon which they subsist.

Migrations.

27. Such movements are, however, subordinate to a more general one of migration, in conformity with which the fur-seals of the North Pacific travel northward to the breeding islands in the spring and return to the southward in the autumn, following two main lines, one of which approximates to the western coast of North America, while the other skirts the Asiatic coast. Those animals which pursue the first-mentioned migration-route, for the most part breed upon the Pribyloff Islands in summer, and spend the winter in that part of the ocean adjacent to, or lying off, the coast of British Columbia. Those following the second route breed, in the main, on the Commander Islands, and winter off the coasts of Japan. The comparative proximity of the breeding islands frequented by the seals pertaining to these two migration-tracts during the summer insures a certain interrelation and interchange of seals between the two groups, to an extent not fully known, and which doubtless varies much in different years.

Winter and summer habitats.

28. The fur-seal of the North Pacific may thus be said, in each case, to have two habitats or homes between which it

migrates, both equally necessary to its existence under present circumstances, the one frequented in summer, the other during the winter. If it were possible to confine the fur-seal to the vicinity of the northern islands resorted to during the breeding season, or even within the limits of Behring Sea, the species would become extinct in a single year; but if, in any way, it were to be debarred from reaching the islands now chiefly resorted to for breeding purposes, it would, according to experience recorded elsewhere, speedily seek out other places upon which to give birth to its young.

29. The fur-seal of the Southern Hemisphere, while recognized as distinct in kind, resembles that of the North Pacific in its habitual resort to littoral breeding places and in other respects, but is not known to migrate regularly over such great tracts of sea, or to have definitely separable summer and winter habitats.

Events on breeding places.

30. With reference to the length of the period during which the fur-seals resort to the shore:—The breeding males begin to arrive on the Pribyloff Islands at varying dates in May, and remain continuously ashore for about three months, after which they are freed from all duties on the breeding rookeries, and only occasionally return to the shores. The breeding females arrive for the most part nearly a month later, bearing their young immediately on landing, and remaining ashore, jealously guarded by the males, for several weeks, after which they take every opportunity to play in the water close along the beaches, and about a month later they also begin to leave the islands in search of food, and migrate to their winter habitat. The young males and the young females come ashore later than the breeding seals, and at more irregular dates, and "haul out" by themselves. Lastly, the pups of the year, born in June and July, commence to "pod," or herd together away from their mothers, towards the middle or end of August, and after that frequent the beaches in great numbers, and bathe and swim in the surf. They remain on the islands until October, and even November, being among the last to leave.

Breeding places.

31. While resorting to or remaining on the land, the fur-seal is practically defenceless, and it is, therefore, on uninhabited islands or rocks that large numbers of seals are known to congregate during the breeding season. Such places alone have afforded the necessary security from various predaceous animals and from man, and all the noted seal "rookeries" of both hemispheres have been found on unpeopled insular areas. The latitude and corresponding climate of such breeding places has doubtless been a circumstance of some importance in rendering certain localities congenial to the fur-seal, but even the single species inhabiting the North Pacific shows a considerable range of adaptability in this respect, provided that the necessary security against disturbance and destruction be afforded for adults and young.

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32. Until the discovery by the Russians of the Commander Islands in 1741, and the Pribyloff Islands in 1786,

these were doubtless, in the average of years, fully peopled with seals up to the limits imposed by natural conditions, such as food supply, areas available for breeding grounds, and the counteracting effects of destructive agencies at that time affecting seal life. Among the latter, particular mention may be made of predaceous marine animals such as the killer whale and shark, and to hunting carried on in the southern portion of the migration-range of the seal by various native tribes. These agencies were almost continuous in their operation, but, in addition, certain occasional causes of destruction of seals must not be lost sight of. Among these are, inclement seasons in which the breeding islands, or some of them, remained so long ice-bound that the females were unable to land in time to give birth to their young; autumn storms, fatal to young seals, and also the recurrent inroads of murrains or diseases of various kinds.

Original conditions on breeding islands.

Of the two first of these last-mentioned causes, instances which have resulted in great damage to seal life have been recorded on the Pribyloff Islands. In regard to the third, though elsewhere observed, there is a remarkable absence of notice in the records of these islands.

Natural fluctuations in numbers.

33. The separate or concurrent effects of such causes, even before the era of the seal hunter, must have produced great fluctuations in the total volume of seal life in certain years or terms of years. There are of course no data available in actual proof of this, but that such must have occurred is sufficiently obvious from analogy with the known facts relating to other animals, and particularly those of a similar gregarious habit.

Interference with natural conditions.

34. In all parts of the world the discovery of the breeding islands of the fur-seal has usually been followed by unrestricted slaughter upon these breeding places, and this has invariably resulted in general depletion, often approaching extermination, but in no known case within historical times, has it actually resulted in complete extirpation.

(B.)—*Killing on the Breeding Islands.*

Effects of killing.

35. The discovery of the breeding islands in the North Pacific, and the slaughter of seals upon them by man, introduced a more important factor in regard to their seal life, the general effect of which, under what regulations soever, tended inevitably towards a reduction in the aggregate number of seals frequenting the islands. In other words, the initiation of commercial killing on the breeding islands interfered with the previously established balance of nature. It formed a heavy new draft upon seal life, while no compensating relief was afforded against the active depredations of other enemies or against other natural occurrences which had heretofore set limits to the increase of the seals. Their former places of secure retreat were invaded by man, while, during the greater part of each year, they remained exposed on the open ocean as before to innumerable accidents, and entirely beyond the control or possible protection of those in charge of the breeding islands. The inroads of the seal killers on the

islands might be modified in kind or in degree, but their general tendency could not be reversed.

Regulations on breeding islands.

36. The Pribyloff and Commander Islands of the North Pacific have, however, continued to be the resorts of large numbers of fur-seals for more than 100 years subsequent to their discovery and occupation by the Russians. Almost from the first, regulations restricting the slaughter of seals on land were instituted and carried out by the Russian authorities, and similar measures have been continued in the case of the Pribyloff Islands by the Government of the United States. Though continuous, or nearly so, in their general operation, such regulations have varied much in their nature, and even more with regard to the degree of efficiency with which they have been enforced, and in the latter respects they have at no time been entirely satisfactory for the purposes intended.

Improvements in regulations.

37. During the early years of the Russian control, the conditions of seal life were very imperfectly understood, and but little regard was paid to the subject. A rapid diminution in the number of seals frequenting the islands, however, eventually claimed attention, and improvements of various kinds followed. Among the first of the more stringent measures adopted was the restriction of killing to males, which followed from the discovery that a much larger number of males were born than were actually
8 required for service on the breeding "rookeries."
The killing of females was practically forbidden on the Pribyloff Islands about 1847, and on the Commander Islands probably about the same date.

38. The obvious fact was also recognized that the killing for food alone of large numbers of young seals or "pups," when their skins came to possess no commercial value, was a useless waste of seal life. On the Commander Islands this practice ceased after the year 1874. It was strongly protested against as early as 1875 on the Pribyloff Islands, but was not actually forbidden there until the year 1891.

Numbers killed on the Pribyloff Islands.

39. The number of seals annually killed on the Pribyloff Islands during the earlier years of the Russian régime is not accurately known, though fairly exact statistics are extant from the year 1817. Sufficient is known, however, to show that the number killed in various years before this date differed widely, and was in some years excessive. The whole numbers of seals killed in certain terms of years has been recorded with approximate accuracy. A study of the figures thus available indicates that the average annual killing during the twenty-one years, 1787 to 1806, both inclusive, was about 50,000; during the nine years, from 1807 to 1816, it was approximately, 47,500; and during the years from 1817 to 1866 was 25,000.

Combining the whole period covered by the figures above quoted, and adding the year in which the islands were discovered, we find that the killing on the Pribyloff Islands averaged for this term of eighty-one years about 34,000 annually.

The exact figures, in so far as these can be obtained, are given in a tabular form (§771).

Depletion threatened in Russian times.

40. The excessive killing of seals in certain years of the Russian period of control, together with the nearly promiscuous slaughter (for the first part of this period) of seals of both sexes and all ages, doubtless had much to do with the alarming decrease in seal life which occurred more than once during this period. It is to be noted, however, in this connection, that as both males and females continue to be productive as breeders for a number of years, the effect of excessive killing of any particular class of seals, such as young males or young females, for two or three consecutive years, could only produce its full effect on the breeding "rookeries" after the lapse of four or five years.

It is thus instructive to observe that even to maintain the comparatively low average number killed during the Russian period, it was found absolutely necessary on several occasions to institute periods of rest or "zapooska," in which all killing of seals was prohibited for some years.

Increase in later years of Russian régime.

41. It is also noteworthy, that for many years previous to the close of the Russsian control (probably from about 1842) under a more enlightened system of management than that of the earlier years, the number of seals resorting to the islands was slowly increasing, and that the average numbef taken annually was gradually raised during these years from a very low figure to about 30,000, without apparently reversing this steady improvement in the numbers resorting to the islands.

42. In 1867, the last year of the Russian tenure, a sudden and great increase in the take of seal-skins was allowed to occur, and the number arose abruptly in this year to about 75,000.

United States control.

43. In the next year, being the first in which the Pribyloff Islands passed into the control of the United States, an almost promiscuous slaughter occurred, in which it is estimated that over 242,000 seals were killed. In 1869 about 87,000 seals in all were killed, making an average number for each of the three years, 1867 to 1869, of over 130,000, and including large numbers of females.

44. The effect of the irregular and excessive killing on the breeding islands in these three years (long before pelagic sealing had grown to be of any importance) became apparent in two principal ways: (1) the number of seals diminished on the breeding islands to an extent much greater than could be accounted for by the actual number slaughtered, and at about the same date the seals were seen in unprecedented abundance off the British Columbian coast to the southward (facts clearly shown in the diagrams and by figures elsewhere given for the catch); (2) the number of young produced in the three following years was much less than before, and this, in conjunction with the extraordinarily high limit of 100,000 allowed by law to be taken each year, commencing in 1871, speedily brought about a very marked decrease in males of killable age. Thus, in 1875, notwithstanding the generally optimistic tone maintained in official reports, we find a first significant note of warning, and economy of seal life is inculcated. In the same year the number of skins obtained was consider-

Effects of excessive slaughter.

ably reduced in face of a steady market, and before the decline in prices of the two succeeding years, which decline, no doubt, accounts in part for the still smaller number of skins taken in these two years.

9 45. It is particularly important to note the effects of the excessive killing of the years 1867–68–69, which, combined with those ensuing from the slaughter of male seals of particular ages in various years to 1876, can be closely followed, chiefly by means of Captain Bryant's intelligent notes on this period, which are elsewhere summarized (§ 810 *et seq.*).

Changes produced by disturbance.

46. It is clearly apparent, and is borne out by the experience of later years, that any severe disturbance of the natural conditions on the breeding islands is at once reflected in changes of habits of the seals and in the irregularities and overlapping of dates in the annual cycle of seal life. Such changes are not prevented by the restriction of killing to males, for an excess in number of males is a part of the natural conditions; and any change in the proportion of males, even if not pushed so far as to become in itself a cause of decrease in numbers born, constitutes a true cause of change in habits, and has a very special effect on the time and place of landing of the females (§ 396 *et seq.*). An excess in number of males, with the consequent competition for females, must, in all probability, further be regarded as a provision for maintaining the strength of the race as a whole by means of natural selection, and in the case of the fur-seal it is not possible to substitute for such provision the artificial selection of breeding males, as is done with animals under the control of man.

Killing fixed at 100,000.

47. In 1870 the Pribyloff Islands were leased by the United States to the Alaska Commercial Company, and the number of seals to be killed for skins was fixed empirically at 100,000 annually. This number was admitted at the time by the best authorities to be experimental (§§ 810, 815), and it was provided by Congress that the Secretary of the Treasury might reduce the number allowed for killing if found necessary, for the sake of preserving the seals and with proportionate reduction of rent. Practically, however, and on grounds not publicly explained, it remained unaltered, and became a fixed limit.

Reported too high.

48. As early as 1875 and 1876 the number thus established was officially reported as being too great, but it was not reduced or changed during the entire twenty years' term of the lease, except by an alteration made in the relative proportions to be killed on St. Paul and St. George Islands in 1874, when also the time during which the killing for skins might progress was extended.

Actual killing exceeded 100,000.

49. The limit thus fixed did not include seals killed for food at seasons or of ages at which the skins were not merchantable; and, as a result, the total recorded take of seals on the islands in each full year of the lease but three, actually exceeded 100,000. Of these three exceptional years, one falls below 100,000 by a very small amount only, while two are considerably below it. Thus, excluding the first year, the number known to have been killed in each

of the nineteen succeeding years of the lease averages 103,147. The official figures for the entire twenty years of the lease further show that, during this term, 129,530 seals, including about 93,000 unweaned young, or "pups," were killed for food or otherwise, of which the skins were not marketable; this waste alone being more than 7 per cent. of the whole number killed.

50. These totals, however, do not include seals lost or destroyed in various ways incidental to the modes practised in driving and killing (§ 704 *et seq.*), nor those taken or killed in raids (§ 727 *et seq.*), or other illegal ways consequent on the imperfect protection of the islands. These together would raise the figures representing the annual killing by a very material though unknown amount. Lieutenant Maynard, in his report written in 1874, estimates the total number of seals killed each year about that date at 112,000. According to Bryant ("Monograph of North American Pinnepeds," p. 410), the total number of seals actually killed upon the islands during the first six years of the United States control amounted to 110,000 annually.

51. The killing since 1867 of so large a number of seals on the Pribyloff Islands thus constituted a draft on their seal life of a character never before attempted, and more than twice as great as any similar demand of which comparable records have been preserved; the annual average, as above stated, for the previous eighty years, having been about 34,000.

52. The various reports on the condition of the seals resorting to the Pribyloff Islands in different years, and other published information bearing on the same subject, are often contradictory, and sometimes so manifestly inaccurate, particularly in respect to the crucial point of the number of seals, that it is difficult from these alone to form any satisfactory or coherent idea of the actual state of seal life during much of this period. These discrepancies in part arise from the frequent changes which occurred in the personnel of the Government Agents and Company's officers, in consequence of which no single method of ascertaining the condition of the "rookeries," or of estimating the number of seals frequenting the islands, was long maintained: in part from the appearance in several cases of the same individual, now in the capacity of an employé of the Company, and again as a supervising officer of the Government. There are also, unfortunately, certain groups of years during which no serious attempt appears to have been made to record the true condition of the breeding islands. This is particularly the case in years between 1880 and 1889.

Reports afford unsatisfactory data.

53. The killing on the islands was, however, by law confined to male seals, and it is, rather from the collateral evidence afforded by allusions to the proportion of virile males to females, together with other incidental references, the meaning of which becomes clear when coupled with local knowledge, than from many of the direct statements published, that a true idea of the actual condition of seal life on the islands during these years can be formed.

Evidence of other kinds.

54. The proper proportion in number of virile males to adult females is a matter of importance, and in estimates, made while the rookeries of the Pribyloff Islands were still in excellent condition, there is a satisfactory measure of agreement on this point. Bryant placed this proportion at one male to nine to twelve females, while Elliott states the mean number of females in a harem in 1872–74 at from five to twenty ("Monograph of North American Pinnepeds," p. 390; United States Census Report, p. 36). M. Grebnitzky, Superintendent of the Commander Islands, and a naturalist of pre-eminent experience in the facts of seal life, informed us that when the proportion of females exceeded ten to each mature male, he considered that too many males were being killed, and that each harem should in no case contain more than twenty females. When, therefore, we find the harems in the Pribyloff Islands growing yearly larger, till at the present time they surpass the proportions above mentioned from four to eight times, it is reasonable to conclude that in this change the effect of an excessive slaughter of young males is rendered apparent. Proportions of males to females.

55. Our own and all other local observations on the rookeries during the last few years prove that it is no uncommon event to find a single male seal with a harem numbering from forty to fifty, and even as many as sixty to eighty, females.

56. Further evidence with the same meaning is afforded by the increasing number of barren females; by the disturbance and change in the habits of the seals; by the actual dearth of "killable" seals in the vicinity of the nearer rookeries, and the extension of driving (as early as 1879 or 1880) to places which had previously been held in reserve and which had seldom or never been drawn upon in earlier years; by the driving of "killables" from the very margins of the breeding rookeries, which should have remained undisturbed; by the longer time during which the killing required to be continued in later years in order to enable the full quota to be obtained, and by the larger number of undersized and otherwise ineligible animals, including females, ruthlessly driven up in recent years and turned away from the killing grounds in an exhausted and bewildered if not actually injured state. The proportion thus turned away, according to the report of the Special Treasury Agent in 1890, actually rose to 90 per cent. of the whole number driven. Further sources of information.

57. A critical investigation of the published matter, together with the evidence personally obtained from many sources and an examination of the local details of the rookeries and hauling grounds on the Pribyloff Islands, leads us to believe that there has been a nearly continuous deterioration in the condition of the rookeries and decrease in the number of seals frequenting the islands from the time at which these passed under the control of the United States, and that although this decrease may possibly have been interrupted, or even reversed, in some specially favourable years, it was nevertheless real, and in the main persistent. Indicate continued decrease.

Number fixed for killing too high.

58. There can be no doubt that the number fixed by law and maintained for commercial killing on the breeding islands has been much too great, and that the resulting slaughter of more than 103,000 male seals in each year has been more than the total volume of seal life could fairly stand. The sparing of females in a degree prevented, for the time being, the actual depletion of seals on the islands, and this, with the fact that the killing of immature males does not immediately produce its effect on the "rookeries," caused the apparent decrease to be at first gradual. As, however, this effect was of a cumulative character, it could not very long escape observation, and it was observed by the natives, as we personally ascertained from them, to be distinct and serious at least as early as 1882 or 1883, while Colonel Murray, the Government Agent, and Mr. Elliott, the Special Treasury Agent, in their several reports to the Treasury, trace the beginning of the notable diminution back as far as 1879 or 1880. Other evidence of a circumstantial rather than a direct character, elsewhere detailed, enables the earlier effects of the general decrease to be followed still further back (§ 674 *et seq.*).

Not adaptable.

59. It is particularly necessary to note that the adoption of a high fixed number to be killed each year, practically prevented such a system of adaptable control, based on the observed facts of each year, as would have enabled the best results to have been obtained and due provision to have been made in time to counteract the effects of unfavourable seasons or of other extraneous conditions affecting seal life. The system adopted was in fact purely artificial, and one not suited to the natural requirements of the case.

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(C.)—*Sealing at Sea.*

Pelagic sealing a further draft on seal life.

60. From the circumstances above noted, the maintenance of seal life in the North Pacific was threatened and reduced to a critical state in consequence of the methods adopted on the breeding islands, where the seals were drawn upon annually to, and even beyond, the utmost limits possible apart from depletion, and where, in consequence of the enlarged season of commercial killing and the allowance of "food killing" during the entire time in which any seals resorted to the islands, these animals had practically no undisturbed season of respite. At this time a new factor also tending towards decrease appeared in the form of "pelagic sealing," a phrase applied specially to the hunting of the fur-seals on the open sea, schooners or other small vessels being employed as a base of operations.

Its origin and development.

61. This particular method of sealing originated as a natural outgrowth from that practised from time immemorial by the natives of the coast of British Columbia, and parts of South-eastern Alaska and the State of Washington. In this industry these natives have from the first been largely interested, though it has been taken up, fostered, and directed by the Whites. It was thus in its mode of origin a perfectly natural and legitimate development of the native modes of hunting (§ 571 *et seq.*).

62. Pelagic sealing, as thus by degrees expanded into an important industry, was an essentially novel method of taking the fur-seal consequent on the peculiar habits and maritime genius of the native peoples of the west coast of North America, and particularly of those in British Columbia, and the vicinity of Cape Flattery in the adjacent State of Washington. It was from the first, and still is, an important source of revenue to a native population, numbering many thousands, as well as a help to their advancement in civilization.

63. Under the circumstances above described as prevailing on the breeding islands, the growth of this new industry, however, meant a further acceleration of the rate of diminution of the fur-seal of the North Pacific as a whole.

Independent native hunting.

64. The hunting of the fur-seal by the native peoples in their own canoes, and using the shore as a base of operations, had been practised from times which are prehistoric for the West Coast; but the total number of seals thus taken (save in certain exceptional years) was always small, and it was not till about the year 1869 that the first practical essays were made in taking the seals at sea with the assistance of schooners provided with Indian hunting crews and canoes. This method of hunting was initiated almost simultaneously, about the time mentioned, in British Columbia and in the adjacent State of Washington.

Peculiar character of pelagic sealing.

65. It may here be particularly noted that the industry thus developed in consequence of peculiar local conditions, had never elsewhere appeared as a factor of commercial importance, and that in so far as we have been able to discover by inquiries specially directed to this point, no vessels carrying hunters for the purpose of taking seals at large on the sea-surface had ever before frequented any seas anywhere.

The vessels sailing from New England and from some British ports, which formerly, in considerable numbers, made sealing voyages to the Southern Hemisphere (§ 834 *et seq.*), slaughtered the seals there only on shore and at the breeding places, and this without any respect for the rights of territorial dominion or property over the islands they frequented. The "sealing fleet" employed in the Southern Hemisphere has, therefore, at no time been of the same character with that engaged in pelagic sealing in the North Pacific.

Its growth.

66. For several years subsequent to its inception, pelagic sealing remained in the hands of a few persons, and was to so great an extent a trade secret that little information can now be obtained respecting it. This is particularly the case in regard to the sealing-vessels sailing from United States ports, some of which, although interested in pelagic sealing proper, are known to have obtained many skins by illegal raiding on the breeding islands from the earliest years of the control of these islands by the United States.

67. From four schooners in 1878 and 1879 (about which time the new development of sealing first began to attract some attention), the sealing fleet owned in British Columbia gradually increased, till in 1889 twenty-three, in 1890

12 twenty-nine, and in 1891 fifty vessels were employed in it. So far as known, the first of these vessels to enter Behring Sea for purposes of sealing was the "Mary Ellen," in 1884. In 1885 two of the British Columbian vessels continued their voyage into Behring Sea, and in the following year the entire fleet, then numbering eighteen vessels (excepting two which were wrecked), did so.

The fifty vessels employed in 1891 were provided with 370 boats and canoes, and were manned by 1,083 Whites and Indians.

68. The number of skins thus obtained grew in proportions corresponding to the growth of the fleet from 35,310 in 1889 to 43,315 in 1890, and to 49,615 in 1891. Only a portion of these catches were, however, made within Behring Sea, and of this portion an increasing percentage was obtained in the western region of that sea.

First pelagic sealing in Behring's Sea.

69. At least one vessel registered in the United States is known to have entered Behring Sea for legitimate pelagic sealing as early as 1881, and, in this particular extension of the industry, the British Columbian sealers cannot therefore claim to be the pioneers.

70. The United States have for many years past strenuously endeavoured to build up native maritime industry. In this pelagic sealing they undoubtedly have on the Pacific coast a useful nursery for seamen. The industry of whaling has shown a serious falling-off in recent years, but that of sealing has exhibited a marked and steady increase. In 1885 there were not ten vessels so employed. In 1891 the sealing fleet owned in the United States numbered more than forty vessels, and the value of the catch is reported to have exceeded 30,000*l.*

(D.)—*Additional points connected with Sealing at Sea or on Shore.*

Decrease observed on Pribyloff Islands.

71. The decrease in the number of seals resorting to the Pribyloff Islands is reported to have been more rapid since 1886 or 1887, and this has been attributed to the growth of pelagic sealing. At the same time, the chief complaint has been that a great proportion of the seals taken at sea are females, whereas the most noticeable decrease observed on the islands is in males. While, therefore, it may be admitted that pelagic sealing must be held accountable for its share in the total effect, the above-mentioned incompatible complaints cannot be received without question. When a decrease became apparent on the islands, prudence should have dictated some curtailment of the annual slaughter there in correspondence with the effect of the new factor tending towards diminution.

Measures practised to obtain quota

72. No such curtailment, however, occurred. The Company holding the lease of these islands on fixed terms were not interfered with, but continued to take their full legal quota of skins without regard to the risk to seal life as a whole. Not only so, but instead of reducing the catch, the standard of weight of skins taken on the islands was

steadily lowered so as to include a younger class of seals under the designation of "killables." Instead of skins weighing 7 or 8 lbs., those of 5 lbs. and (as we have ascertained on excellent authority) even of 4 lbs. and of 3½ lbs. have been taken and were accepted by the Company as early as 1889.

This is in marked contrast with the conduct of affairs on the Commander Islands, where no seals yielding skins below 7 lbs. in weight have been allowed to be killed for some years, and where in 1891, in order to afford a factor of safety, the limiting weight of skins was raised to 8 lbs.

73. The Company holding the lease of the Pribyloff Islands had, of course, its own interests in view, and the period of its lease was drawing to a close; but it must be added that no explanation has been offered by the Government Agents in charge of the islands of the principles under which they were guided to allow this lowering of standards, with the concomitant encroachment on the limits of breeding rookeries, and the extension of the area of driving to places hitherto held in reserve.

Waste of seal life.

74. Summarizing the causes of waste of seal life involved in the methods actually practised in killing seals on the Pribyloff Islands (§ 659 *et seq.*), we find the following to be the most serious:

(i.) The killing of unweaned "pups" and of "stagey" seals for "food," which together reached an average amount equalling 7 per cent. of the total annual catch. The skins of such seals are unmerchantable, and their slaughter is now admitted to be unnecessary, but it has been allowed to continue till the year 1891.

(ii.) Accidental killing of seals, due to over-driving, and other violence inseparable from the mode of "driving" and clubbing the seals. These evils had been fully dealt with by the United States Special Agent in his report for 1890.

13 (iii.) "Stampedes" upon the breeding rookeries, caused by efforts to secure "drives" too close to their borders, or to carelessness of various kinds. These are especially destructive to "pups," which are trampled to death by the older seals.

(iv.) Effects of disturbance on the breeding rookeries, and of distress and fright resulting from "driving," which, it is believed, causes many mothers with young, as well as other classes of seals, to leave the breeding islands prematurely.

(v.) Surreptitious killing of seals by unauthorized persons on the islands. This may not have reached great dimensions, but is known to have occurred, and no statistics can be obtained respecting it.

(vi.) Raids upon the rookeries, rendered possible by the laxity of control and supervision, which prove most destructive to all classes of seals engaged in breeding, and especially to nursing mothers and "pups."

75. The official statistics show, besides the seals killed of which the skins were accepted for shipment, only those killed for "food," and of which the skins were rejected.

All the incidental causes of loss above noted are unaccounted for, and the actual percentage of wastage in securing the annual quota of skins since the Alaska purchase thus remains indeterminate, but must have been great. It is believed to have exceeded 10 per cent., and may well have reached 20 per cent. on the whole number of skins accepted.

Difficulty of regulating shore killing.

76. It is thus clear that the slaughter of seals upon the breeding islands is in itself an essentially critical and dangerous method of killing, which, although established by long custom, can scarcely be otherwise justified. No regulations which have heretofore been devised have even theoretically removed such dangers. Till quite recently, altogether insufficient care has been exercised in carrying out existing regulations; and the facts above referred to show clearly in what way, notwithstanding stated rules, and, in the absence of thoroughly independent and trained supervision, such rules may be so interpreted or strained as to permit the most serious damage to seal life as a whole.

Allegations against pelagic sealing.

77. Against the methods of pelagic sealing two principal lines of criticism and of attack have been developed, and both have been so persistently urged in various ways, that they appear to have achieved a degree of recognition by the uninformed altogether unwarranted by the facts, in so far as we have been able to ascertain them, though in both there is an underlying measure of truth. It is stated (1) that almost the entire pelagic catch consists of females; (2) that a very large proportion of the seals actually killed at sea are lost.

Killing of females.

78. It is undoubtedly true that a considerable proportion of the seals taken at sea are females, as all seals of suitable size are killed without discrimination of sex. This is, in part, however, a direct corollary of the extent and methods of killing upon the breeding islands, where, practically, in late years, all males reaching the shore have been legally killable, and where, as a matter of fact, nearly all the young males which land have been persistently killed for some years, with the necessary result of leaving fewer killable males in proportion to females to be taken at sea.

79. The precise bearings on the industry as a whole of the character and composition of the pelagic catch made along various parts of the coast and in Behring Sea are discussed at greater length elsewhere (§ 633 *et seq.*), but it may be here noted that the great surplus of females, resulting from the practice just alluded to, has certainly rendered the killing of considerable numbers of these at sea less harmful in its effect than it might otherwise have been.

80. To assume that the killing of animals of the female sex is in itself reprehensible or inhuman, is to make an assumption affecting all cases where animals are preserved or domesticated by man. Most civilized nations, in accordance with the dictates of humanity as well as those of self-interest, make legislative provision for the protection of wild animals during the necessary periods of bringing forth and of rearing their young; but the killing of females

is universally recognized as permissible if only to preserve the normal proportion of the sexes. This is the case in all instances of game preservation and stock raising, and in the particular example of the fur-seal, it is numerically demonstrable that, in maintaining a constant total of seals, a certain proportion of females should be annually available for killing. The killing of gravid females must, however, be deprecated as specifically injurious, and in any measures proposed for the regulation of seal hunting should receive special attention.

Percentage lost of seals killed.

81. Respecting the number of seals lost after being killed at sea, a large mass of evidence has been accumulated, not alone directly from the pelagic sealers proper, but also from independent native hunters, both Indian and Aleut, and from other sources of a disinterested character. The result of this goes to show that the asserted wastefulness of the methods employed is gravely exaggerated by common report, and that there has been marked improvement in this respect due to the increasing experience of the hunters (§ 613 *et seq.*).

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82. Against this expert testimony we find scarcely more than supposititious statements quoted and requoted, which, when traced back to their sources, are discovered to rest either on very limited experience or on very doubtful authority; in some of which the number of seals fired at is hopelessly confused with the number killed, while in others it is even assumed that the number of rounds of ammunition disposed of represents the number of seals killed. We have thought it well to follow up all the statements upon which these allegations and hypothetical calculations are based, and practically all of these are summarised elsewhere (§ 614), and call for no further comment here. It is certain that inexperienced hunters miss many seals, and lose a considerable proportion of those hit, but such purely negative results cannot rightly be assumed to have any bearing on the number lost by skilled hunters, such as constitute the crews of the successful sealers.

Mortality of young seals.

83. More recently a further accusation has been made against the practice of pelagic sealing, to the effect that large numbers of females, with young upon the breeding islands, are killed at sea, and that in consequence many of the young die. The consideration of this point involves so many facts of seal life that it cannot be treated at length here; but it may be mentioned that, when upon the Pribyloff Islands in 1891, we ourselves were the first to note and to draw attention to the occurrence of a considerable number of dead "pups" in certain parts of the rookery grounds. Various explanations of this fact were offered by the residents of the islands, both Whites and Aleuts, but in no instance was the killing of the mothers at sea at first voluntarily advanced by them as a principal cause. The actual circumstances, closely investigated by us, were, indeed, such as to call for some other explanation, as elsewhere detailed (§ 344 *et seq.*). It is, nevertheless, certain that mothers are sometimes killed at sea, especially in proximity to the shore fronts, and it is chiefly upon this

ground a radius of protection about the breeding islands, extending beyond the ordinary limit of territorial jurisdiction, is advocated as a measure of material benefit.

Effect of high prices.

84. In addition to the circumstances obtaining on the breeding islands, and the inception and growth of pelagic sealing, the high prices ruling for skins during the past few years have to a considerable extent stimulated the hunting of seals by natives all along the coast. They have also tended to incite, on the part of the more lawless sealers, raids upon the shores of the breeding islands themselves, many of which have proved successful in consequence of the wholly inadequate protection which has heretofore been accorded to these shores; but, so far as we have been able to ascertain, no schooners sailing from British Columbia under the British flag have even been detected as participants in such raids on the Pribyloff Islands.

(E.)—*Former and present Condition of the Industry.*

Seals becoming more pelagic.

85. Perhaps the most notable result of the above-mentioned co-operating causes, embracing the disturbance of conditions on the breeding islands consequent on close and persistent driving and great paucity of males, on raids made upon the shores of the islands, and on hunting at sea during the northward migration of the seals, has been to render that animal even more than before strictly pelagic in habit.

86. Seals not actually engaged in breeding, including young seals of both sexes and barren or unimpregnated, though mature females, have either not landed upon the islands, or have remained there for but a short time; and thus the aggregate number to be seen on shore at any one time has of late years become notably reduced.

More than ever found at sea.

87. At the same time, the general consensus of the statements obtained from persons occupied in pelagic sealing goes to show that there has been no similar decrease in the number of seals found at sea, but rather a possible increase during the corresponding years. The evidence of a general kind to this effect does not stand alone, but is fully confirmed by an analysis of the annual catch of the British Columbian sealing fleet for the past few years, as exhibited in the subjoined table, in which the average number of skins obtained to each canoe or boat, and to each man employed in the pelagic sealing industry is given:

15 Year.	Number of Seals per Canoe or Boat.	Number of Seals per Man.
1887	164	56
1888	143	55
1889	156	58
1890	160	59
1891	*134*	*46*

Weather and other obvious circumstances, including those connected with the uncertain status of the sealers in respect to seizure, have of course affected the figures for the various years to a considerable extent; but speaking generally, the results show a remarkable uniformity, and taking into consideration the measures adopted in 1891 under the *modus vivendi*, the results of pelagic sealing in this year are particularly noteworthy and to the point, seeing that of the fifty schooners employed, nearly all were turned back before the expiry of the usual hunting season.

More wary than formerly.

88. At sea, however, it is generally acknowledged that the seals are becoming from year to year more and more difficult of approach and capture, facts specially noted by the native independent hunters, because specially affecting their catch by reason of the greater distance from shore to which it is now necessary to go in search of seals.

Diminution on Pribyloff Islands.

89. While, therefore, it is certain that, in recent years, the number of seals to be found upon the Pribyloff Islands has very considerably decreased, it is uncertain to what extent this particular decrease has been compensated for, or is counterbalanced by the greater dispersion of seals at sea. Under all the circumstances, it must be considered as a remarkable evidence of the resistance of seal life to unfavourable treatment, that the apparent decrease upon the islands has not been even greater.

90. Respecting the actual amount of this decrease upon the Pribyloff Islands, it is difficult to arrive at anything like precise conclusions, in consequence of the lack of trustworthy evidence of a comparable nature for the various years. A study of the available published data, made in connection with a personal examination of the various breeding grounds themselves, has convinced us, however, that some, if not all, the estimates of the total number of seals made in the earlier years of the term of the Alaska Commercial Company have been greatly exaggerated, while reports made in 1890, however accurate in themselves, have, because compared with these overdrawn estimates, exaggerated the amount of the decrease.

91. The alarming forecasts as to the condition of the breeding islands based upon reports made in 1890, have, fortunately, not been verified by the facts in 1891, as personally observed by us. If, indeed, the correctness of some of these reports for 1890 be admitted, the rookeries must have materially improved in condition in 1891, while all the evidence collected indicates that they were, in 1891, in at least as good condition as they were in the preceding year.

Diminution on Commander Islands.

92. On the Commander Islands, where the breeding rookeries have undoubtedly been more carefully and systematically supervised, the number of seals seen has gradually increased for many years, and has in late years apparently held its own up to the present year, in which a decrease has been noted. There is reason to believe, however, that the increase ceased in 1889 or 1890, and was replaced by a deficit in 1891 in consequence of the number of skins taken in the two foregoing years, which greatly exceeded the

average, presumably because these years were the last of the Alaska Commercial Company's lease of these islands. Reasonable proof is thus again afforded that the sum total of seal life on the breeding islands is affected most directly by excessive killing on shore.

Facts at sea and ashore complementary.

93. In nearly all that has heretofore been written on the fur-seal of the North Pacific, attention has been too narrowly confined to such observations as could be made upon the breeding islands, and the fact that the greater part of the life of the seals is spent, not upon these islands, but at large on the ocean, has been to a great extent lost sight of. This naturally happened from the circumstance that those in any way interested in the seals, till the beginning of pelagic sealing, remained upon the breeding islands, and knew merely what could be ascertained there. The data now obtained at sea, for the first time enables the migration routes and the winter as well as the summer habitat of the fur-seal to be clearly understood, and it becomes evident that, in considering the condition of seal life as a whole, we must include, not only the observations made on the islands, but also the complementary, and, in part, countervailing, facts noted at sea.

General conclusions.

16 94. A review in detail of all the available facts, most of which have been alluded to or outlined in the foregoing part of this summary, leads us to believe that there has been, in the main, a gradual reduction in the total volume of seal life in the North Pacific, dating back to a period approximately coincident with the excessive and irregular killing on the Pribyloff Islands in 1867 to 1869, but that this reduction in total volume has not in late years been nearly so rapid as the observed decrease in numbers upon the Pribyloff breeding islands in the corresponding years. Such a review suggests that if suitable and moderate regulations be now adopted and carried out, the decrease may be arrested, and no danger of the proximate depletion of the fur-seal or destruction of the fur-seal fishery need be anticipated.

Possible result.

95. If, however, the inflexible and heavy draft on seal life in the past should be maintained on the breeding islands, while pelagic sealing also continues to increase at the present ratio, it is practically certain that the whole number of seals must, in the course of a few years, become further reduced to such a degree as to cause the industries based upon their capture to lose all importance from a commercial point of view. The continued undue disturbance of the seals must likewise tend to cause them to abandon their present haunts.

Industrial considerations.

96. Apart, therefore, from such merely ethical considerations as have from time to time been advanced in favour of the preservation of the fur-seal, but which appear to have no special bearing upon this more than on any other animal in a state of nature, the intrinsic value of the fur of the seals together with the material interests involved in the taking and the dressing of the skins, seem to call for such regulations as may result in the maintenance of the fishery.

97. A point, however, of grave but unrecognized importance, is the direct influence on the sealing industry of the market for seal-skins. It is necessary to remember that the requirements of this market may from time to time altogether alter the regulations necessary. In the Atlantic hair-seal fishery, for instance, the international regulations became subject to the new requirements of a process by which the hair of newly-born seals became commercially valuable. Again, the actual price of the skins at any particular period depends largely upon the uncertain requirements of fashion; and it is known that the Alaska Commercial Company, recognizing this fact when lessees of the Pribyloff Islands, by various more or less direct methods, did much to popularize and increase the market value of the seal-skins, of which in the earlier years of their lease they held a practical monopoly.

98. To render this point perfectly clear, it is only necessary to quote the following expressions from the report of the Congressional Committee of 1876 on the Alaska Commercial Company:—"Every art and appliance and much money have been expended in the cultivation of a taste for seal-skin furs, which the Alaska Commercial Company had almost the exclusive control over. . . . By placing on sale a larger number of skins than was required the prices obtained would be lessened, and the popular estimate of this luxury depreciated, so that its present value would be endangered and a change of fashion probably effected, diverting it to some other fur, which might ruin the trade altogether."

99. The high price obtainable for the skins in recent years has, however, been in itself a principal cause of the increased activity in killing and hunting which now appears to threaten the industry. If, for any reason, the price of seal-skins should fall below, or even nearly to, the amount of the Government tax (10 dol. 25 c.) payable on skins under the new lease of the Pribyloff Islands, then, on the one hand, the lessees would no longer find it remunerative to continue taking seals on shore, and, on the other, the profits of sealing at sea would become so much reduced as to discourage further enterprise in this direction.

Regulations desirable.

100. It would thus appear that, as matters stand, a most influential factor in respect to the fate of the fur-seal fishery is one altogether removed from natural facts of seal life, and that either the demand for seal-skins as a whole, or the special size or kind of skins called for by the market, may at any time be changed in such a manner as to introduce new determining factors in the industry. It is therefore evident that, in a matter of such considerable importance, some additional and possibly counteracting system of regulation of an intelligent kind is desirable; that this should include a consideration of the industrial features of the case as well as of those relating to the fur-seal as an animal, and should be susceptible of constant adaptation to the changing requirements of the problem.

17 II.—Considerations Relating to the Basis upon which Precautions may be devised for the Preservation of the Fur-seal.

The case to be met.

101. The case to be met in the North Pacific is outlined in the foregoing paragraphs, and is treated in greater detail in Part II of this Report. Broadly stated, it is that too many seals are or may be killed, that there are too few males on the breeding islands; and that the seals, being so continually harassed and disturbed, may take to other breeding and feeding places, or largely diminish in numbers, and in either case endanger and damage the existing sealing industries.

(A.)—*Interests involved.*

Interests at sea and ashore.

102. In regard to interests, the sealing industry is naturally divided into what may, for the sake of brevity, be termed the shore and ocean interests respectively. The rights in either case are indisputable, and the possessors of one class of these rights will not willingly allow them to be curtailed or done away with for the mere purpose of enhancing the value of the rights of their commercial rivals. Thus the only basis of settlement which is likely to be satisfactory or permanent is that of mutual concession, by means of reciprocal and equivalent curtailments of right, in so far as may be necessary for the preservation of the fur-seal.

103. It may be added, that the line of division between the shore and ocean interests is not an international one, and that the question of compromise as between the two industries cannot, in consequence, be regarded strictly from an international point of view. If we may judge from the respective number of vessels employed, the interest of citizens of the United States in pelagic sealing is at the present time approaching to an equality with that of Canada; while Germany and Japan have been or are represented in sealing at sea, and other flags may at any time appear. The shore rights, again, are at present chiefly divided between the United States and Russia, although Japan owns some smaller resorts of the fur-seal.

Capital employed.

104. Confining ourselves more strictly to the eastern part of the North Pacific, to which the present discussion directly relates, a comparison may be instituted between the amount of capital employed in the prosecution of sealing on shore and at sea, and of the other interests involved.

On the Pribyloff Islands.

105. At the present time the actual value of the buildings, plant, and equipment of the North American Commercial Company, on the Islands of St. Paul and St. George, is estimated not to exceed 130,000 dollars (26,000*l.*). Adding to this a further sum to cover other items of capital less directly connected with the islands themselves, the entire invested capital would probably be over-stated at 200,000 dollars (40,000*l.*); and it is not to be forgotten that the Companies leasing the seal islands habitually do a profitable retail trade in supplies, &c., with the natives and others in addition to acquiring the seal-skins.

In the Canadian vessels.

106. The estimated aggregate value of the British Columbian vessels employed in sealing, with their equipment, as they sailed in 1891, was 359,000 dollars (72,000*l.*). It has been asserted that only a portion of this total, corresponding with the length of the period in each year in which these vessels are actually engaged in sealing, should be taken as the capital invested. This statement is, however, as a matter of fact, incorrect. The sealing vessels are seldom used in or fitted for other employment, and nearly all of them remain laid up in harbour between the dates of the closing and opening of the sealing season—that is, between October and January, or February.

Total.

107. Adding to the above amount an estimate of the value of the United States sealing fleet in the same year, which, it has been ascertained, exceeds 250,000 dollars (50,000*l.*), and may probably amount to 300,000 dollars (60,000*l.*), an aggregate amount of capital of about 650,000 dollars (130,000*l.*) is represented by the combined fleets.

In the foregoing estimates, no mention is made of the revenue accruing to the Government of the United States from the lease of the Pribyloff Islands to the sealing Company.

Comparative number of skins taken.

108. It is difficult to present a numerically accurate statement showing the magnitude of the several interests as represented by the number of skins taken on the Pribyloff Islands and at sea respectively. During the past few years, the statistics of the Canadian pelagic catch have been fully and carefully recorded; but of the catches made by the numerous vessels sailing from ports in the United States, no trustworthy or complete official or trade statistics appear to exist. Certain approximate figures for the total pelagic catch have, however, been obtained,
18 the difference between which and those representing the Canadian pelagic catch, compared with other incomplete statistics, may be roughly assumed as showing the catch by United States vessels. These totals include, however, in some cases, skins taken on seizure from both Canadian and United States vessels. The statement thus presented may be considered as at least sufficiently accurate to indicate the relative importance and growth of the shore and sea industries respectively. The catches made by United States vessels are comparatively small in proportion to the number of vessels employed, chiefly because of the lack of skilled hunters.

109. These statistics may be tabulated as follows:

Year.	Skins taken on the Pribyloff Islands.	Skins taken at sea by Canadian Vessels.	Approximate totals of Skins taken at sea (records of catch by United States vessels being fragmentary).	Remarks.
1886	85,455	24,344	36,000	First seizures by United States Government. Three Canadian and one United States vessel seized.
1887	90,770	20,266	37,500	Six Canadian and ten United States vessels seized.
1888	86,995	24,329	(?)	No seizures made.
1889	78,623	27,868	42,870	Four Canadian and two United States vessels seized.
1890	20,945	39,547	51,560	No seizures made. Killing stopped on Pribyloff Islands, at figures stated, by United States Government Agent.
1891	12,070	49,615	68,000	Vessels turned back from Behring Sea before completion of voyages. Killing on Pribyloff Islands, limited to 7,500 under *modus vivendi*, actually reached 12,071.

110. In explanation of the above table, it may be added: (1) That the figures given for the Pribyloff Islands are those of the skins actually accepted for shipment in each year by the lessees, and are therefore neither identical with those representing the shipments made yearly, nor with those elsewhere given for the whole number of seals killed in each year; (2) that the relatively small coast catch made by the Indians in their own canoes and without the aid of sealing-vessels is not included in the pelagic catch; (3) that the pelagic catch as given includes skins taken both outside and within Behring Sea, and both in the eastern and western parts of that sea, as well as such skins as were obtained by raids made on shore on the breeding islands.

Number of men employed.

111. The number of men employed in the British Columbian sealing fleet alone, in this year (1891), was 1,083, in the United States fleet about 750, making a total of about 1,830 persons earning their livelihood by this means, of whom about 1,430 are White and 400 Indians. In the shore sealing upon the Pribyloff Islands the number of men employed is about 10 Whites and 80 "natives."

Native interests.

112. Upon the Pribyloff Islands the whole "native" population deriving its support from the industry of killing the fur-seal numbers under 300. Much has been said as to the necessity of providing for the support of these particular "natives." It is not so generally recognized, however, that in British Columbia probably 1,500 or 2,000 natives depend upon the earnings of about 370 Indian hunters employed in the sealing fleet. The earnings of these hunters thus represent much of the support of a considerable part of the entire native population of the west coast of Vancouver Island.

Native independent sealing.

113. The direct interest in sealing of the Indian tribes of British Columbia, parts of Alaska, and the State of Washington is, moreover, not confined to their share in pelagic sealing proper. The results of independent hunting, carried on for the most part in canoes from the shore by men

who do not ship in sealing-vessels, is, from the point of view of the Indians themselves, not inconsiderable. It amounts for the British Columbian coast alone (§ 569) to an annual money value of about 30,000 dollars (6,000*l.*), besides a considerable food value represented by the seal flesh and fat.

This independent native hunting is undoubtedly a primitive vested interest of the coast tribes, and its character in this respect is strengthened by the fact, now made clear, that the winter home of the fur-seal lies along, and is adjacent to, the part of the coast which these seal-hunting tribes inhabit.

19 114. In regard, then, to the interests likely to be affected by any measures of preservation, it is evident that much the largest amount of invested capital is that engaged in pelagic sealing, while the most important native interest involved is that of the Indians who take seals either along the coast or as engaged hunters in the schooners. On the islands there is far less capital employed, and the number of natives earning a livelihood is relatively small. Summary.

(B.)—*Principles involved.*

115. Passing from the interests to a more special consideration of the principles involved in the protection of the fur-seal, it is in the first place clear, in view of the habits and range of migration of this animal, that unlimited killing, whether practised on shore or at sea, must ultimately result in destroying the prosperity of the sealing industry as a whole, and, therefore, that any measure of protection, to be effective, must include both areas. Protection both on shore and at sea.

116. It is, moreover, equally clear, from the known facts, that efficient protection is much more easily afforded on the breeding islands than at sea. The control of the number of seals killed on shore might easily be made absolute, and, as the area of the breeding islands is small, it should not be difficult to completely safeguard these from raiding by outsiders and from other illegal acts. Easier on shore.

117. The danger to seal life on the breeding islands is, on the other hand, and for reasons of a similar kind, particularly great. It is chiefly by the persistent killing of all males between certain ages upon the Pribyloff Islands that the sealing industry is immediately threatened. To killing carried out on shore at the breeding season the depletion of the fur-seals of the Southern Hemisphere is entirely due, and, as we have seen, as an effect of such killing, long before the inception of pelagic sealing, the rookeries of the Pribyloff Islands were more than once brought to the verge of depletion. Greater danger of depletion on shore.

It is certain that by excessive killing on the breeding islands, to whatever class of seals directed, the sealing industry as a whole might without difficulty be ruined.

118. In sealing at sea the conditions are categorically different, for it is evident that by reason of the very method of hunting the profits must decrease, other things being equal, in a ratio much greater than that of any decrease in the number of seals, and that there is therefore inherent Less danger at sea.

an automatic principle of regulation sufficient to prevent the possible destruction of the industry if practised only at sea. The growth of pelagic sealing proper, even though so recent in its origin, already begins to contribute experience in support of this view. The seals when at sea occupy a given area of surface, and there is thus a natural limit to the number of boats or canoes which can work that area without interfering to a certain extent with each other's success. The increasing wariness of the seal has already been alluded to, and it is also to be borne in mind that sealing at sea can only be carried on in calm weather, seals obtaining absolute "rest" while stormy weather prevails.

Protection sea alone quite inadequate.

119. It is, therefore, abundantly evident, if we judge by actual experience, that a control of seal life beginning and ending with protection at sea, either partial or absolute, can do no more than palliate, and certainly cannot materially lessen, the danger to seal life as a whole, unless such control be devised and adopted in close co-operation with agreed upon equivalent measures on the breeding islands.

120. Whether from the point of view of expediency or from that of justice, this must be the dominant principle of any regulation, and while it is improbable that any scheme of measures would be seriously proposed which neglects this principle, it cannot be too plainly stated that if the attempt is made to regulate the killing of seals on shore or at sea without the provision of concurrent restrictions upon the other method, the result at best would be a curtailment of slaughter in one direction, the door being left open to a more than equivalent slaughter in the other, and no security being obtained. It therefore follows that, as one class of restrictions must be applied within jurisdictional limits, and the other requires regulations applicable to all comers upon the high seas, the subject of measures must be considered as one of conventional agreement, concession, or bargain as between the Powers interested. It will also be remembered, that the primary plea for such an arrangement has been that advanced in their own interest by the possessors of the breeding islands; but it is believed, on the other hand, that had no such plea been made, the interests of the pelagic sealers would, in the natural course of events, have led them to press for a better protection of the breeding places of the seals ashore, in the interests of their own branch of the industry.

Suggested prohibition on shore.

121. It has been pointed out, and we believe it to be probable, that if all killing of seals were prohibited on the breeding islands, and these were strictly protected and safe-guarded against encroachment of any kind, sealing at sea might be indefinitely continued without any notable diminution, in consequence of the self-regulative tendency of this industry.

New methods of control necessary.

122. The natural development of pelagic methods of sealing has rendered it now no longer possible to preserve the seals merely by restricting the catch on the breeding islands, and the old methods of utilizing the seals on these islands, and of affording them a measure of protection there during the season at which they come to land for breeding purposes,

have become in their nature ineffective and inappropriate, especially in view of the sea sealing, which, at the time these methods were adopted, was practically unknown. The added knowledge of the fur-seal now gained renders it further necessary to recognize it as an essentially pelagic animal, which, at a certain season of each year, resorts to the land. Thus, the older and cruder methods of regulation have become unsound and in large measure useless, and the new conditions which have arisen require to be faced, if it is desired to obviate all danger of commercial extermination.

Various rights involved.

123. Besides the general right of all to hunt and take the fur-seal on the high seas, there are, however, some special interests in such hunting, of a prescriptive kind, arising from use and immemorial custom, such as those of the "natives" of the Pribyloff Islands, and of the inhabitants of the Aleutian Islands, of South-eastern Alaska, of the coast of British Columbia, and of the State of Washington. There are also rights dependent on local position, such as those of the Governments possessing the breeding islands and those controlling the territorial waters in or adjacent to which the seals spend the winter half of the year. Such rights do not, however, depend on position only, but also on the fact that the seals necessarily derive their sustenance from the fish which frequent these waters, which, if not thus consumed by the seals, would be available for capture by the people of the adjacent coasts. The rights of this kind which flow from the possession of the breeding islands are well known and generally acknowledged, but those of a similar nature resulting from the situation of the winter home of the seal along the coast of British Columbia have not till lately been fully appreciated.

Prohibition on Pribyloffs.

124. Referring more particularly to the Pribyloff Islands, it must perhaps be assumed that no arrangement would be entertained which would throw the cost of the setting apart of these islands as breeding grounds on the United States Government, together with that of the support of some 300 natives.

It may be noted, however, that some such arrangement would offer perhaps the best and simplest solution of the present conflict of interests, for the citizens of the United States would still possess equal rights with all others to take seals at sea, and in consequence of the proximity of their territory to the sealing grounds, they would probably become the principal beneficiaries.

Needs no international regulations.

125. Any such disinterested protection of breeding islands either by Russia or the United States would possess the extreme simplicity of being entirely under the control of a single Government, whereas in every other project it becomes necessary to face the far more difficult problem of international agreement to some code of regulations involving an accompanying curtailment of rights. In other words, any such arrangement must be viewed either as a concession of certain rights on the high seas, or a concession of peculiar rights devolving from territorial possession of the breeding islands of the seal, made in each case for

the purpose of inducing equivalent concessions on the other side in the common interest.

The ruling principle of protection.

126. For practical purposes, the main consideration is that any scheme of measures of protection shall absolutely control, so far as may be necessary, any and every method of taking seals; and from industrial considerations, and in order properly to determine on reciprocal concessions, it is necessary to assume some ruling principle in accordance with which these shall be governed, and such may be found, in a rough way, in postulating a parity of interests as between pelagic sealing and sealing on the breeding islands. This would involve the idea that any regulation of the fishery, as a whole, should be so framed as to afford as nearly as possible an equal share in benefit or proceeds to these two interests.

Rights at sea and on breeding islands compared.

127. Inasmuch as the United States and Russia, with in a minor degree Japan, alone have direct interests in the breeding islands, while all other nations share with them the undoubted right of sealing on the high seas, it may at first sight appear inequitable that any basis of arrangement giving so large a share to the possessors of the breeding islands and involving so general a curtailment of common rights should be contemplated.

128. The exceptionally favourable position which
21 the United States and Russia would hold under such a basis of arrangement is, however, to some extent justified by the fact, that upon these Governments would devolve the expense and responsibility of efficiently controlling and guarding the breeding islands of the seals. It may be noted that the present time is one specially favourable to some such arrangement, because Great Britain and the United States alone possess considerable sealing fleets, and it is probable that any regulations agreed upon by these two Governments (especially if also approved by Russia) would meet with the ready concurrence of other Powers at present but slightly interested, or with merely a potential concern in the matter.

Measures adopted elsewhere.

129. In dealing with specific measures of preservation, it may be well to bear in mind that more or less effective steps have already been taken for this pupose in other parts of the world besides the Pribyloff and Commander Islands. It is wholly in accordance with long experience in game protection in the United Kingdom that the tendency has arisen in various parts of the British Empire to protect the fur-seal. In Australasia, in South Africa, and in the Falkland Islands, regulations have been adopted from time to time with this object. Further precedents of a specially appropriate character are found in the regulations of the Newfoundland Government for the control of the great hair-seal fishery, and in the Jan-Mayen International Agreement, whereby a certain area of the North Atlantic, defined by lines of latitude and longitude, has been subjected to specific rules as to sealing since 1875, these rules affecting the control of vessels, their captains, and crews.

Principal modes of protection suggested.

130. The principal modes of protection of a practical character which have been suggested for the North Pacific by various authorities may be classed under the following heads:

(*a.*) Time. Limit in period of sealing.

(*b.*) Number. Limit in number of seals taken.

(*c.*) Area. Limit in regions over which sealing may be carried on.

(*d.*) Methods Improvement in methods of conducting sealing.

Time limits: Close seasons.

131. Limitations of time have been placed most prominently in the list of remedies; and, indeed, "close seasons" have been popularly regarded as the main if not the only remedy of a general kind. It is clear, however, in the light of facts, that, for the purpose of limiting the total numbers taken, a time limit is specially applicable only to the pelagic industry, in which the number of seals taken bears a direct ratio, other things being equal, to the length of the season of hunting, and where the only way in which a reduced catch would not result from a shortened season would be by an increased number of vessels employed, which would soon reach unremunerative limits. On the breeding islands, on the contrary, limiting the time of killing does not necessarily limit the numbers taken, and the only effective limit is one of number. This has been fully acknowledged in the measures adopted throughout with regard to the regulation of the catch on both the Pribyloff and Commander Islands, where it is obvious that if but one or two summer months in all were allowed for killing and no other restrictions were applied, the number of seals killed would become merely a question of the number of men employed, and need only be limited by the exhaustion of animals to kill.

Effects differ at sea and on shore.

132. With further reference to the effect of proposed time limits or close seasons on the shore- and sea-sealing respectively, and in order to prove that such an apparently simple method of regulation is not equally applicable to both industries, it may be shown that generally this effect would be not only inequitable, but often diametrically opposite in the two cases.

In pelagic sealing, the weather is usually such as to induce a few vessels to go out in January, but the catches made in this month are as a rule small. In February, March, and April the conditions are usually better, and larger catches are made. In May and June the seals are found further to the north, and these are good sealing months; while in July, August, and part of September sealing is conducted in Behring Sea, and good catches are often made till such time as the weather becomes so uncertain and rough as to practically close the season.

On the Pribyloff Islands.

133. Upon the Pribyloff Islands, though it has been the custom to kill a certain number of seals for food at all times during the period of five or five and a-half months in which any seals are found on shore, the young males or "bachelors" (which, together with virgin females, are practically the only class which can be taken ashore in large numbers

without actually breaking up and destroying the breeding rookeries) do not arrive in notable proportions till June, and, in common with other seals upon the islands, become "stagey," and incapable of yielding good skins about the middle of August. The profitable killing on the Pribyloff Islands is thus naturally limited, as a maximum, to a period of about two months, and as a rule and under normal circumstances, the annual quota has been completed within thirty to fifty working days, during which the slaughter is carried on at a numerical ratio many times greater than that attainable during any period of the pelagic killing.

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134. With seals killed at sea, the skins are never found to be in a "stagey" condition, as has been ascertained by inquiries specially made on this point, and there is, therefore, no naturally definite close to the time of profitable killing, such as occurs on the islands. The markedly "stagey" character of the skins at a particular season appears to be confined to those seals which have remained for a considerable time on the land.

Close seasons thus not equally applicable.

135. Without, therefore, entering at length into a comparison of the respective effects of close seasons at sea or on shore, it may be stated that, with the exception of the months of July and August, any close time whatever would have practically no effect on the killing on the islands, while several of the months which might be chosen would seriously affect sealing at sea. If, again, June or July should be chosen as a close month, it would shorten the time of killing upon the islands, but without necessarily reducing the number killed; while an endeavour to insert such a month of inaction, in the middle of the season of pelagic sealing, would not only be very difficult in proper enforcement, but, if enforced, would practically break up the sealing voyages, as the vessels engaged are then far from their home ports.

Other means of regulation.

136. Limitations of number of other kinds have, however, been proposed as applicable to the regulation of pelagic sealing. Thus, it has been suggested that the number of seals to be taken by each vessel should be limited according to tonnage; that the whole number of vessels employed should be limited; that those engaged in sealing be required to obtain a license; and that a limited number of personal licenses should be supplied to individual hunters.

Some such provisions might be found to possess a partial applicability, but while they might be useful portions of a greater whole, they could not by themselves become efficient systems of control.

Combined limitation of time and number.

137. An equitable basis of protection is therefore not to be found in the adoption of any simple and corresponding close season, including a part of each year applicable to both shore and sea alike; but as pelagic sealing might easily be regulated by the adoption of a close season, while shore sealing might with equal facility be governed by a limit of number, it seems probable that some compromise of interest may be arrived at by a combination of these methods.

Time limits at sea.

138. If certain months should be discussed as a close time for sealing at sea, it becomes important to inquire which part of the season is most injurious to seal life in proportion to the number of skins secured, and to this inquiry there can be but the one reply, that the most destructive part of the pelagic catch is that of the spring, during which time it includes a considerable proportion of gravid females, then commencing to travel on their way north to bring forth their young. It is on similar grounds and at corresponding seasons that protection is usually accorded to animals of any kind, and, apart from the fact that these seals are killed upon the high seas, the same arguments apply to this as to other cases.

139. This portion of the pelagic sealing is wholly carried on in that part of the North Pacific which lies to the south of the Aleutian Islands, and here also, as has already been pointed out, a certain number of seals are killed at the same season by the independent sealing of natives resident along the coast of British Columbia and South-eastern Alaska. The aggregate number of seals killed in this particular way is, however, relatively so small that it may be practically ignored in any general proposals looking to protection. It is scarcely possible, under present circumstances, to interfere with the independent native sealing, even if it should be considered just to attempt to do so. This species of hunting is decreasing rather than increasing in amount as other industries grow up, and it may be further indirectly discouraged without great difficulty.

140. It may be remembered that, to a great degree, any restrictions of time applied to sealing at sea are also restrictions of area, for at different seasons the sealing is necessarily carried on in different parts of the ocean.

Limits of area on shore.

141. Respecting protection by means of limiting the area of sealing operations, it may be pointed out that the circumstances are such as to enable this to be done upon the breeding islands without difficulty, for, both in the case of the United States and Russia, two separate islands are resorted to by the fur-seals, and one or other of these islands in each case might be strictly set apart and maintained as a reserve of seal life. Or, again, certain portions of the several islands might without difficulty be permanently exempted from driving or disturbance by the sealers.

Expense of control at sea.

142. Limitations affecting sealing operations on the high seas, by international assent, might equally be established and maintained with the aid of a sufficient patrol of cruizers, though such police regulations would be attended
23 with considerable expense. Some expenditure is, however, involved under any system of control of sealing at sea, whether defined by area or by time limits.

Protected zones round seal islands.

143. In any case, great good would be done by extending around the breeding islands, to a distance to be agreed upon in conformity with the circumstances, a zone of protected waters. Such an area of protection, if only of moderate width, would not alone prevent the disturbance or slaughter of practically all seals at the time actually resorting to the breeding rookeries, but would possess the great

additional advantage of rendering it possible to put down the very destructive raids upon the rookeries, which have, almost from the time of the Alaska purchase, been practised with comparative impunity by certain unscrupulous sealers (§ 727 *et seq.*). It has always been easy, under cover of darkness or fog, to slip in under the land across an imaginary line drawn at only three miles from the shore; but by extending such a limit to ten or twenty miles, it can be made an effective safeguard, so long as any cruizer is retained about the islands on police duty. The advantages of such a widened zone of protection will be quite obvious to any sailor, and its practical effect would be to keep the sealers, from ordinary prudential motives, very far from the shores of the breeding islands. A 60-mile zone was reported by Mr. Blaine (in December 1890) to be, in the opinion of the President, an "effective mode of preserving the seal fisheries for the use of the civilized world."

144. To render such reserved area an efficient protection, however, it would be necessary to provide that between certain dates no vessels, whether under pretext of whaling or fishing of any kind, should enter the protected area except in making a passage, and that any vessel lowering boats, or hovering within this area, would be subject to penalties. It is already known that vessels ostensibly engaged in whaling and other pursuits in Behring Sea, have really occupied themselves or aided in sealing or raiding, and any less strict measures of preservation could only result in increasing this evil.

(C.)—*Summary of General Conditions bearing upon Regulation.*

145. From the foregoing review of the various facts and circumstances of seal-life in the North Pacific, the following may be stated to be the governing conditions of proper protection and preservation:

(*a.*) The facts show that some such protection is eminently desirable, especially in view of further expansions of the sealing industry.

(*b.*) The domestic protection heretofore given to the fur-seal on the breeding islands has at no time been wholly satisfactory, either in conception or in execution, and many of its methods have now become obsolete.

(*c.*) Measures of protection to be effective must include both the summer and winter homes, and the whole migration-ranges of the fur-seal, and control every place and all methods where or by which seals are taken or destroyed.

(*d.*) Although primarily devised for the protection and perpetuation of the fur-seal itself and of the sealing industry as a whole, any measures must be such as to interfere as little as possible with established industries, and such as can be instituted under existing circumstances.

(*e.*) Equitable consideration must therefore be given to the several industries based upon the taking of seals, and especially to the number of persons dependent on these for

a livelihood and to the amount of capital invested, so that the measures adopted may be such as to recommend themselves on the ground of common interest.

(*f.*) The controlling Regulations should be so framed as to admit of varying degrees of stringency in accordance with the changing exigencies of the case.

III.—Measures for the Protection and Preservation of the Fur-seal of the North Pacific.

(A.)—*General Nature of Measures required.*

146. The actual measures necessary for the proper protection and preservation of the fur-seal fall under two heads, namely:

(i.) Improvements in the methods of taking seals;

(ii.) Restriction in the number of seals taken.

24 Those of the latter class are the more important, but as the "improvements in methods" are more easily dealt with, and are scarcely open to question, these may be first outlined.

(i.)—*Improvements in the Methods of taking Seals.*

147. *On the Breeding Islands.*—The "drives" should be made as short as possible, say, not to exceed half-a-mile as a maximum. They should be carried out with due deliberation, avoiding excessive hurry, and under the personal supervision of a responsible officer, and all seals not intended to be killed should, as far as possible, be "cut out" at an early stage in each "drive."

The actual clubbing of the seals should be performed with greater care, avoiding injury or death to seals not intended to be taken.

148. Care should be exercised to avoid disturbing the actual breeding rookeries in any way, and no seals not capable of yielding merchantable skins should ever be killed.

The breeding islands should be fully secured against "raids," a competent guard, with authority to repel any attempts at landing, being provided; while some armed vessel should remain about the islands during the whole of each sealing season, say, from the 1st June to 30th November.

149. *At Sea.*—Here most of the improvements in methods which may be suggested, necessarily partake of the character of restrictions which may tend directly to reduce the number of seals taken. Such improvements therefore require to be considered in their connection with the general regulations proposed for the restriction in number of seals killed.

150. The most important improvements or restrictions which may be treated from the side of "methods" are as follows:

Prohibition of the use of rifles in shooting seals at sea, and of the employment of nets as a means of capture.

The adoption of a system of personal licences for White hunters, such licences to be renewable annually, and revokable for proved breach of any of the regulations provided.

Vessels propelled by machinery to pay an increased licence fee, or to be wholly excluded from sealing.

(ii.)—*Restriction in the Number of Seals taken.*

151. We are of opinion that to be effective and suited to the existing conditions and to the interests at present involved, any system of measures for regulating the number and kind of seals taken should include provisions of the following kinds:

(*a.*) The strict limitation of the number of seals killed on the breeding islands to a safe maximum, the number and kind of seals to be adjusted within the limit of this maximum, from year to year if found necessary, in accordance with the actually observed state of the breeding rookeries in each year.

(*b.*) The institution of a zone of protected waters surrounding the breeding islands.

(*c.*) The establishment of a close time, such as to limit the period of hunting at sea, and so devised as in particular to safeguard the seals during that portion of the spring (covering the earlier part of the sealing voyages as now made) in which a certain proportion of gravid females is taken.

152. One or other of these provisions for the limitation of sea sealing should be subject to modification in area or time respectively, in such manner as to check any tendency to excessive killing at sea, to allow for exceptionally unfavourable breeding seasons, and, in general, to correspond with any marked increase or decrease found to occur in the number of seals.

153. It is suggested that such compensatory changes in the degree of stringency of regulative measures shall be made to depend upon the number fixed for killing on the breeding islands in each year, so that if it be found necessary or advisable to change this ruling number at any time, the degree of stringency of the regulations applied at sea may be proportionately increased or diminished.

154. A compensatory principle of this kind should absolutely remedy (if not in each individual year, at least in the average of years) any possible want of efficiency in the general scheme of measures, removing any doubt which may be supposed to attach to the proper control of sealing at sea, which it is not possible to regulate on an exact numerical basis.

25 (B.)—*Specific Scheme of Regulations recommended.*

155. In view of the actual condition of seal life as it presents itself to us at the present time, we believe that the requisite degree of protection would be afforded by the application of the following specific limitations at shore and at sea:

(*a.*) The maximum number of seals to be taken on the Pribyloff Islands to be fixed at 50,000.

(*b.*) A zone of protected waters to be established, extending to a distance of 20 nautical miles from the islands.

(*c.*) A close season to be provided, extending from the 15th September to the 1st May in each year, during which all killing of seals shall be prohibited, with the additional provision that no sealing-vessel shall enter Behring Sea before the 1st July in each year.

156. Respecting the compensatory feature of such specific regulations, it is believed that a just scale of equivalency as between shore and sea sealing would be found, and a complete check established against any undue diminution of seals, by adopting the following as a unit of compensatory regulation:

For each decrease of 10,000 in the number fixed for killing on the islands, an increase of 10 nautical miles to be given to the width of protected waters about the islands. The minimum number to be fixed for killing on the islands to be 10,000, corresponding to a maximum width of protected waters of 60 nautical miles.

157. The above regulations represent measures at sea and ashore sufficiently equivalent for all practical purposes, and probably embody or provide for regulations as applied to sealing on the high seas as stringent as would be admitted by any Maritime Power, whether directly or only potentially interested.

158. As an alternative method of effecting a compensatory adjustment of the stringency of measures of protection, it is possible that some advantages might be found in the adoption of a sliding scale of length for the season of sealing at sea, with a fixed width of zone of protection about the islands.

In this case it is believed that, in correspondence with a decrease of 10,000 seals killed upon the breeding islands, the length of the sealing season at sea might be curtailed by seven days, such curtailment to be applied either to the opening or closing time of the sealing season.

159. It may be objected to the principle involved in any correlative regulation of shore and sea sealing, that it would be impossible in any particular year to make known the number fixed for killing on the islands in time to secure a corresponding regulation of pelagic sealing. As a matter of fact, however, if the condition of the breeding rookeries called for any change, it should be possible to fix this number with sufficient precision a year in advance; while, on the other hand, the general effect would be almost equally advantageous if the number killed on the islands in any one year were employed as the factor of regulation for pelagic sealing in the following year.

160. While a zone of protection has been spoken of as the best method of safeguarding the vicinity of the breeding islands, it is to be borne in mind that such an area might be defined for practical purposes as a rectangular area bounded by certain lines of latitude and longitude. Even in dense fog, and, therefore, comparatively calm weather, an arrested vessel could be anchored with a kedge and warp until the weather cleared, according to frequent custom. The special advantages of a concentric zone appear to be that it is more directly in conformity with the object in view, and that in fine weather the visibility or otherwise of the islands themselves might serve as a rough guide to sealers.

161. The restriction of the number of seals killed on the breeding islands, appropriate safeguards being provided, admits of very considerable precision, and requires no special explanation. That the restriction of the number taken at sea may be accomplished practically and with all necessary certainty, and that the means of control available in the case of this branch of the sealing industry are sufficient, is clearly shown by the successful application of measures such as these here proposed, to the Jan-Mayen and Newfoundland hair-seal fisheries, as well as of those based on like principles which are generally employed in protecting fish and game.

26 (C.)—*Methods of giving effect to Regulations.*

162. The means suited to secure the practical efficiency of regulations at sea are generally indicated by those adopted in the instances just cited. It is unnecessary to formulate these here in full detail, but the

following suggestions are offered as pointing out those methods likely to prove most useful in the particular case under consideration:

(i.) Statutory provisions should be made, declaring it unlawful to hunt or take fur-seal during the close season by subjects or vessels of the respective Powers.

(ii.) The time of commencement of the sealing season should be further regulated by the date of issuance of special Customs clearances and of licences for sealing, and preferably by the issuance of such clearances or licences from certain specified ports only.

(iii.) As elsewhere explained, the regulation of the time of opening of the sealing season is the most important, and the closing of the season is practically brought about by the onset of rough weather in the early autumn. If, however, it be considered desirable to fix a precise date for the close of sea-sealing in each year, this can be done, as in the case of the date of sealing under the Jan-Mayen Convention.

(iv.) The liability for breach of the regulations, of whatever kind, should be made to apply to the owner, to the master or person in charge of any vessel, and to the hunters engaged on the vessel.

(v.) The penalty imposed should be a fine (of which one-half should go to the informant), with possibly, in aggravated cases or second offences, the forfeiture of the catch and of the vessel itself.

(vi.) To facilitate the supervision of the seal fishery and the execution of the regulations, all sealers might, in addition, be required to fly a distinctive flag, which might well be identical with, or some colour modification of, that already adopted for the same purpose by the Japanese Government.

(D.)—*Alternative Methods of Regulation.*

163. Although the general scheme of measures above described appears to us, all things considered, to be the most appropriate to the actual circumstances, measures of other kinds have suggested themselves. Some of these, though perhaps less perfectly adapted to secure the fullest advantages, recommend themselves from their very simplicity and the ease with which they might be applied. Of such alternative methods of regulation, three may be specially referred to:

(*i.*)—*Entire Prohibition of Killing on one of the Breeding Islands, with suitable Concurrent Regulations at Sea.*

164. The entire reservation and protection of one of the two larger islands of the Pribyloff group, either St. Paul or St. George Island, might be assured; such island to be maintained as an undisturbed breeding place, upon which no seals shall be killed for any purpose. On the remaining island, the number of seals killed for commercial purposes would remain wholly under the control of the Government of the United States.

In consideration of the guaranteed preservation of a breeding island with the purpose of insuring the continuance of the seal stock in the common interest, a zone of protected waters might be established about the Pribyloff Islands, and pelagic sealing might be further controlled and restricted by means of a close season, including the early spring months, or by a protected area to the south of the Aleutian Islands, defined by parallels of latitude. Such provisions at sea to have, as far as possible, quantivalent relation to those established on the breeding islands.

(ii.)—Recurrent Periods of Rest.

165. This implies the provision of a period of rest, or exemption of all seals from killing, both at sea and on shore, to extend over a complete year, at such recurrent intervals as may be deemed necessary.

27 Such a period of rest might be fixed in advance for every fifth, or possibly as often as every fourth, year, and be made to form a part of a general scheme imposing limitation of number of seals killed on the islands in intervening years, together with restriction by time or by area of pelagic sealing.

While proximately equal in effect on both shore and sea killing, a period of rest of this kind would, in other respects, cause some inconvenience by its interruption of the several industries, and this, though minimized by the fact that the date of occurrence of the year of rest would be known in advance, would not be wholly obviated by this circumstance.

(iii.)—Total Prohibition of Killing on the Breeding Islands, with Concurrent strict Regulation of Pelagic Sealing.

166. While the circumstance that long usage may in a measure be considered as justifying the custom of killing fur-seals on the breeding islands, many facts now known respecting the life history of the animal itself, with valid inferences drawn from the results of the disturbance of other animals upon their breeding places, as well as those made obvious by the new conditions which have arisen in consequence of the development of pelagic sealing, point to the conclusion that the breeding islands should, if possible, remain undisturbed and inviolate.

167. If this view should be admitted, and particularly if the United States and Russia, as the owners of the principal breeding islands of the North Pacific, should agree to co-operate in entirely prohibiting all killing of seals on these islands, and in guarding and protecting the breeding places upon them, it should be possible to obtain, in consideration of such care exercised in the common interest, an international assent to measures regulating sea sealing, of any required degree of stringency, including certain special rights of supervision by the Powers mentioned.

168. It might, for example, under such circumstances, be provided—

(1.) That all sealing-vessels should be registered, and should take out special licences at one or other of certain specified ports, as, for instance, Victoria, Port Townsend, Honolulu, Hakodate, and Vladivostock.

(2.) That such annual clearances or licences be not issued before a given date, say, 1st May, and that certain licence fees be exacted. Such licence fees to be collected by the Customs authorities of the licensing Government, and to be eventually transferred, in whole or in part, proportionately, to the Governments protecting the breeding islands, to go toward meeting the cost of this protection.

(3.) That no vessel should seal in Behring Sea before some fixed date (say, 1st July) in each year, and that vessels intending to seal in Behring Sea should report either to the United States or to the Russian authorities on or after that date at named ports, such as Unalaska or Petropaulouski.

(4.) That all duly licensed sealing-vessels should be required to fly a distinctive flag, and that any unlicensed vessel found engaged in sealing should be subject to certain penalties.

(5.) That a zone of protected waters should be established about the breeding islands, within which no sealing should under any circumstances be permitted.

(E.)—*International Action.*

169. In the foregoing remarks on the measures available for the protection and preservation of the fur-seal of the North Pacific, reference is made throughout especially to the eastern part of that ocean, including more particularly the area comprised in the range of those fur-seals of which the summer haunts and breeding places are about or on the Pribyloff Islands, and of which the winter home is found especially off the coast of British Columbia. It is evident, however, that the same remarks and recommendations apply equally to those fur-seals which in summer centre about the Commander Islands, and in winter frequent the seas off the coast of Japan.

170. It may be stated, further, that no system of control can be considered as absolutely complete and effective which does not include under common regulations all parts of the North Pacific, and that the facility of execution of measures and their efficiency would, under any system of regulations, be much increased by the concurrent
28 action of Great Britain, the United States, Russia, and Japan, as indicated in the Message of the President of the United States in 1889. Apart from the fact that vessels prevented from sealing at given dates in certain areas might at these times frequent other waters in increased numbers, the circumstance that there is a certain, though not fully known, interrelation and interchange of seals between the eastern and western breeding islands of Behring Sea, points very clearly to the advisability of such co-operation in protection.

PART II.

DETAILED OBSERVATIONS ON THE FACTS AND CONDITIONS OF SEAL LIFE.

I.—NATURAL HISTORY AND ENVIRONMENT OF THE FUR-SEAL OF THE NORTH PACIFIC.

(A.)—*Migrations and Range of the Fur-seal of the North Pacific.*

(i.)—*Eastern Side of the North Pacific.*

171. Respecting the migrations and range of the fur-seal in the North Pacific, while numerous scattered references are to be found, these are for the most part fragmentary and vague, and no connected account of the migrations or migration routes, based upon facts, have heretofore been given. The additional information gained in the course of special inquiries on this subject now, however, not only enables the migrations of the fur-seal to be clearly followed, but appears definitively to set at rest the question which has been consistently asked by sealers from the earliest times of the Russian occupation as to the winter habitat of the fur-seal.

172. Written inquiries on this and other points were addressed to the district Indian agents along the coast of British Columbia, and the traders, Aleuts, Indians, and others interested or engaged in seal-hunting, or resident on the West Coast, have been conversed with and questioned. (See Appendix C.)

173. The notes thus obtained are summarized below, and it may be stated that, with few and unimportant exceptions, such as may be explained by variations from year to year in time and direction of migration, these are concordant and homogeneous in their meaning.

174. Those who have been upon the Pribyloff Islands in the autumn and winter state that the seals leave these islands and their vicinity for the south chiefly between the middle of October and the early part of December, though a few may depart before the first date, while in exceptionally mild seasons stragglers have been known to remain after the latter month. The mature seals, especially the females, are the first to leave, the pups (now on account of their change of coat ranking as "grey pups") going later, and almost all about the middle of November, when they are driven off by the weather. The "holluschickie" (half-grown males or "bachelors") and a few old bulls are the last to leave.

175. From October to December, but chiefly in November, the seals are seen in varying abundance by the Aleuts of the eastern part of the Aleutian Islands, and are hunted by these people.

The openings in the Aleutian chain, through which most of the seals go southward, are those known as the Unalga, Akutan, Unimak, and Issanakh Passes. The seals killed here are chiefly grey pups, which, particularly when the wind blows strongly from northerly directions, seem to miss the actual passes, and to become embayed for a time in the harbours and inlets on the northern side of the islands.

When strong easterly winds prevail at this season, grey pups, which have evidently made their departure from the Pribyloff Islands, are occasionally and in small numbers drifted as far to the westward as Atka Island, longitude 172° west, but none are ever seen at Attu Island.

176. On getting clear of the Aleutian Islands, the seals continue their migration in a southerly or south-easterly direction, and do not follow the coast in its north-easterly sweep, round the border of that part of the ocean which is sometimes called the Gulf of Alaska. They are not seen about Kadiak at this season, and only rarely in the autumn and winter off Sitka. Nearly two degrees of latitude south of Sitka, however, the Indians of Klawak, in the Bucarelli Gulf, take a number of seals every winter, generally about Christmas, most of these being grey pups or yearlings.

177. About the northern part of the Queen Charlotte Islands, some young seals are seen every winter toward the end of January and in February. These are chiefly grey pups or yearlings, though a few full-grown males and seals of other ages are seen as well. Hunting is not carried on at this season, but considerable numbers of such seals have sometimes been taken close to the shore. Between the latter part of February and the third week in April, it is stated that no seals are seen here.

Abreast of, or somewhat further north than, the Queen Charlotte Islands, a considerable body of seals is often met with at sea by the pelagic sealers in May or June. These seals are then moving northward.

In the northern part of Hecate Strait and its adjacent waters a few grey pups are said to be often found in November and December, but persons giving information on this point mention the end of December as the time of arrival. Seals are more plentiful in January, February, and March, but particularly in February. The entrance to Wark Inlet is specially noted as a locality at which grey pups are often obtained at this season. A few adult seals are sometimes taken in winter off Banks Island, but no regular hunting is attempted there before the 1st March, when Bonilla Island is occupied for this purpose by Kit-katla Indians, and the 1st April, at which time Tshimsians resort to Zayas Island for the same purpose. The hunting, as at present practised, extends over April and the greater part of May; off Bonilla Island it is continued through the greater part of June, but this difference is due rather to the option of the Indians than to any diversity in dates in the arrival and departure of the seals in the two places.

Seals of both sexes and all ages are killed during the hunting season, and a few full-grown bulls are seen, but are seldom taken. There is, in this region, no interval between the arrival of seals from the north in the early winter and their departure for the north, which occurs in the main about the end of May.

Mr. R. Cunningham states, that about twenty-three years ago, he was personally cognizant of the fact that for several successive years a small colony of adult seals stayed all the winter about Somerville Island, in the entrance of Observatory Inlet. These seals appeared to be following and feeding upon the ulachan or candle-fish.

178. On that part of the coast about Milbank and Fitzhugh Sounds, still further south, but unlike the last region in being fully open to the Pacific, a few seals are seen about Christmas, or not long thereafter. They are generally first observed outside Cape Calvert. Seals are most abundant in March, but a few remain till the latter part of June. The seals coming first are chiefly females, but after about the 1st June they are nearly all young males. Fully matured large males are found in small numbers; grey pups or yearlings venture further into the inner channels, and come nearer to the shores.

179. About the north end of Vancouver's Island and the entrance to Queen Charlotte Sound the seals are first seen early in December, but not in any abundance until about Christmas, from which time, for a month or six weeks, they are very numerous in all this vicinity; though the stormy character of the weather prevents the Indian hunters from going far to sea in pursuit of them. They are stated to disappear about April. The females are the first to arrive in the winter, but are followed by the grey pups or yearlings a little later, and in most of the time during which the seals remain, both sexes and all ages are represented, though the grey pups come nearest to the shore, particularly when the weather is rough. In the winter of 1890–91, a number of seals were killed by the Indians as far in as the entrance of Knight's Inlet, and on one occasion (according to Mr. Huson, about 1870, in March) a great number of grey pups ascended Knight's and Kingcombe Inlets to their heads, following the ulachan, which seek these places to spawn at this season.

180. At Nootka, on the west coast of Vancouver Island, it is stated that no seals are seen before Christmas, but in the first or second week after that date, according to the weather, hunting begins, and is continued for three months. Occasional large old bulls are also rarely seen here.

181. At Clayoquot Sound, the seals arrive about Christmas, or between that time and the end of December, and hunting begins early in January. The Indians report that some schooners hunt off that coast for about a month from this date before going north. Seals of both sexes appear here and remain together, but no large bulls have ever been seen.

In 1885 seals were unusually abundant off Clayoquot as early as the 10th or 15th December, but were mostly grey pups "smalls," or 2 and 3 year-olds.

182. About Barclay Sound the seals are first reported in December, and are often very abundant during January and February. The greater number leave before the end of April, when they begin to travel north, but a few are killed, further out at sea, sometimes as late as the 15th June.

Most of the skins brought in by Indians are grey pups or "smalls," but in 1891 there was an unusual number of adult skins.

183. With further reference to the occurrence of fur-seals on the
30 A coast of British Columbia generally, the following note by Mr. J. W. Mackay, who has for many years been conversant with this coast, may be quoted. In reply to inquiries made, he writes: "These animals were driven to the ocean from the narrow waters by the use of fire-arms in hunting. During the spring, numbers of the young animals fish in the broken waters inside the half-tide rocks and reefs which fringe the western shores of Vancouver Island and of the other islands which lie west of the mainland from Queen Charlotte Sound to Dixon Entrance. The older animals remain further at sea, but numbers of

them take refuge in the larger sounds during stormy weather; I have seen them off Metla-katla in the month of January."

184. Captain John Devereux, who has been for twenty-seven years on the coast of British Columbia, and has had excellent opportunities for observation, in command of the Canadian Government steamer "Douglas," informs us, in reply to questions addressed to him, that from the latter part of November, or early in December, to the beginning of June, the fur-seal is found off the coast of the entire length of Vancouver Island, but that in the early winter the weather is altogether too rough for hunting. He adds, "When they are found along the bank on the west coast of Vancouver Island they are feeding on their natural feeding-grounds." He further states that, though often far off the land, he has frequently found them inshore, and even eighteen miles up Barclay Sound; as well as in the Strait of Fuca, and, on rare occasions, in the Gulf of Georgia.

185. Near Cape Flattery and about the entrance of the Straits of Fuca, it is reported that the Indians have on exceptional occasions seen seals as early as December, and schooners have been known to take seals in that month off the Cape; but the seals usually arrive about the 1st January, when hunting begins. Grey pups are the first to appear, but in February all sorts of seals are found, except mature males. No full-grown bulls have ever been seen in this vicinity. No females with pup are found after the 5th or 6th July, and it is probable that only a few stragglers of any kind remain, though, according to Judge Swan, occasional seals are to be found here at all seasons. The last seals seen in summer are as a rule males or barren females. In exceptional instances a few seals, probably grey pups or yearlings, have been noted in recent years as far up the Straits of Fuca as Victoria and Port Townsend. Mr. J. W. Mackay, already quoted, states that the older hunters of the Songis, Sooke, and Tlalum tribes, living on or near the southern end of Vancouver Island, told him that in former years fur-seals were in the habit of landing in large numbers at Race Rocks, within 11 miles of Victoria. Fur-seals also many years ago frequented the Gulf of Georgia, and Mr. Mackay has himself bought skins from the Seshal Indians, of Jarvis Inlet, which they had taken at Sangster Island, near Texada Island.

186. From the foregoing notes, embodying the result of careful inquiries personally made at the localities referred to along a stretch of 2,000 miles of the west coast of the Continent, it is evident that in that part of the ocean adjacent to the entire length of the coast of British Columbia, as well as within the main openings and inlets of that coast, the fur-seal is a permanent winter resident, arriving soon after it is known to have passed southward through the Aleutian chain, and remaining till a general movement to the north begins in the early spring, and, though the movement last referred to acquires greater force and regularity towards its close, no time occurs between the arrival of the seals from the north and the return migration, at which they are not found off this coast.

187. To the north of the Queen Charlotte Islands, however, the case is different, for here, as already stated, the seals do not follow the coast in the autumn migration, whereas they move in rather close parallelism or contiguity to it when on their way north in the spring and early summer. Thus, in the vicinity of Sitka some seals appear near the coast as early as the middle of April, but they become abundant during May, and some are still seen in the early part of June.

On the Fairweather ground, in the Gulf of Alaska, seals are most

hnmerous from the 1st to the 15th June. About the 25th June, in 1891, tuey were found in abundance by the sealing-schooners on the Portlock banks, to the east of Kadiak Island.

About Kadiak they are generally found from the 25th May to the end of June, being most abundant in the average of years about the 10th June. They are seldom seen in July, and very rarely even stragglers are noticed after the middle of that month.

In the latter part of June, or about the 1st July, the female seals in pup, which have entered Behring Sea, are found only making their way rapidly and directly to the breeding islands, while the great body of non-breeding seals either travel in a more leisurely way and with frequent intervals of rest, in the same direction, or disperse themselves in search of food over various parts of the sea.

30 B 188. According to Elliott, Bryant, and Maynard, the greater number of the adult breeding males (known as "beachmasters" or "seacatchie") arrive at the Pribyloff Islands and take up positions there, from the 1st to about the middle of June. The females about to give birth to their pups follow, at first in small and then in large numbers, their time of arrival ending about the 10th to 25th July. Yearlings (the grey pups of the previous season) come to the islands in great numbers in the latter part of July.

189. Comparatively little attention has been given to the movements of the full-grown males by the pelagic sealers, because of the small value of their skins, but it has been noticed that even as early as May the females at sea are travelling more persistently than the other seals to the north, while after the 1st June they are said to "bunch up" and to travel so fast towards the passes in the Aleutian Islands, that it is impossible to kill many of them.

190. Respecting the extreme southern limit of the range of the fur-seal of the North Pacific on the American coast, little can be added to what has already been published. The earliest departures of vessels for pelagic sealing from Victoria usually occur not long after the 1st January; these vessels then generally cruize southwards, sometimes nearly to the latitude of San Francisco, in pursuit of seals; but it would appear that no large "catches" have been recorded to the south of the Columbia River, and frequently much of what has been classed in the Returns as "south-coast catch" has been obtained off the entrance of the Strait of Fuca. It seems certain that in recent years, at least, no considerable number of seals is found further south than about 46° north latitude, though stragglers may find their way much further south.

Captain Scammon, in his work on marine mammalia, states that fur-seals were formerly abundant on the Californian coast. They have been noted, in small numbers, as lately as 1878 on the coast of Southern California,* while Professor Jordan informs us that they were still taken in considerable numbers on the Guadaloupe Islands there in 1879.† We have also been informed by an experienced sealer that in former years, he had seen fur-seals as far south as the Gulf of Tehuantapec.

191. On this subject Professor Allen writes: "The fur-seal is well known to have been formerly abundant on the western coast of North America, as far south as California, but the exact southern limit of this range I have been unable to determine." He then quotes Scammon as to the occurrence of these animals on the San Benito Islands, the coast of Lower California, Guadaloupe Island, and Cedros Island, in latitude 28°. He adds, writing in 1880: "Although at one time abundant on

* Elliott, Census Report, p. 66.

† "Fishery Industries of the United States," vol. ii, p. 393.

the California coast, they are by no means numerous there now, having been nearly exterminated by unrestricted slaughter by the sealers."* This local depletion of seals may incidentally be taken as a further evidence of the local character of the seal herds above referred to, a point of some importance, which is subsequently discussed. If included in the annual migration-cycle of the Pribyloff Island seals, the Californian coast should not at this date have shown any notable sign of diminution in number of seals.

It is, however, extremely improbable that these seals were concerned in the annual migration to Behring Sea, and doubtful whether they were regularly migratory at all in the proper sense of the term. Like most of the fur-seals of the southern hemisphere, they may merely have resorted to the neighbouring land at the breeding season.

Scammon states that the fur-seals formerly bred along the Californian coast. The Farallone Islands, off that coast, are known to have been the resort of a considerable body of seals, which may be assumed to have been of the same species with those of the North Pacific, and doubtless occupied these islands as breeding places. The Russians established a station there, and, "from 1812 to 1818, about 8,400 fur-seal skins were obtained there, and it is stated that before their occupation by the Russians as many as 10,000 were taken on these islands in a single autumn."† The season at which this killing took place, if correctly given, is alone sufficient to show that the seals found here were not migrants from the far north.

192. Disregarding exceptional cases of small importance, with the occurrence of stragglers preceding or lagging behind the main body of seals, and including both sexes and all ages of seals without reference to the different dates at which these are known to reach various points, it would thus appear that the seals which resort to the eastern part of Behring Sea, with the Pribyloff Islands as a centre, in the main
31 frequent that sea from the early part of June till about the middle of November, a period of about five months and a-half. Behring Sea may, in fact, be named their *summer habitat.*

During a period of four and a-half or five months, extending in the main from about the 1st January to the middle or end of May, they frequent the sea lying off that part of the West Coast included between the 56th and 46th parallels of north latitude,—these limits including the whole length of the British Columbian coast, and extending beyond it slightly at both extremes. This is the *winter habitat* of the fur-seal of the eastern side of the North Pacific.

During a great part of the time, in which the seals are off this coast, the weather is so tempestuous as to prevent successful pelagic hunting, whether from schooners, or directly by canoes using the shore as a base of operations. The actual numbers of seals seen close in shore depend largely upon the weather in each locality, and varies much from year to year; and with a prevalence of strong westerly winds, the grey pups or yearlings are driven into the immediate vicinity of the coast and into its bays and channels, first and in the largest numbers. The neighbourhood of Dixon Entrance, the northern end of Vancouver Island, the entrance to Queen Charlotte Sound, and the entrance to the Straits of Fuca, are localities specially notable for the abundance of seals during the winter and spring.

The actual resorts of the seals are not alone influenced by the weather, but also greatly by the supply of suitable food, as more fully explained

* "Monograph of North American Pinnipeds," p. 332.
† Bancroft's Works, vol. xxxiii, p. 487.

elsewhere; and it is probably in great measure because of the abundance of food fishes near the larger openings in the land above mentioned, that these places are special resorts.

193. It is a noteworthy and interesting fact, ascertained in the course of the present inquiry, that the full-grown males, known as "beach-masters" or "seacatchie," have seldom or never been reported to the south of the 50th parallel, while all other classes of seals are found in considerable numbers much further south. This statement, of course, applies to the seals frequenting as their winter habitat that part of the ocean lying off the coasts of British Columbia and the State of Washington.

194. Touching the distance to which the seals extend off the coast during the winter months, the generally stormy weather at this season, with the dependant absence of pelagic sealers, have prevented accurate information from being obtained. Captain Devereux, already cited, has, however, possessed special opportunities for obtaining information on this subject. He writes: "The distance from the shore where they (fur-seals) are to be found most plentiful, say, off Cape Beale (where the bank extends furthest from the land), is from 30 to 150 miles; but these figures must not be taken by any means as a fixed limit." Judge Swan has recorded the fact that, in 1880, large numbers of fur-seals were seen at from 100 to 300 miles off shore by vessels bound into the Straits of Fuca from China and the Sandwich Islands, but the exact time of year is not given.* While the seals are moving northward in the spring, it can only be stated that, when the weather becomes such as to enable pelagic hunting to be carried on, the main body of seals is found to extend for a width of 50 or 60 miles off the coast of Vancouver Island, and for about 80 miles off the Queen Charlotte Islands.

195. Between the winter and summer resorts of the fur-seals lies a minimum distance of about 1,200 miles, across which they pass only during their migration. As already stated, in their spring migration they appear to follow parallel to the general trend of the coast on their way northward and westward, keeping in touch with the shore, or at least with the soundings or submarine edge of the continental plateau.

196. In their southern or south-eastern migration the seals do not follow the coast, but after passing through the Aleutian Islands, it is possible that they may at first scatter rather widely and at random over the ocean. It is certain, at least, that they do not pursue a direct course to the northern portion of their winter habitat, and thence travel regularly southward along the coast. The comparatively small differences and occasional irregularities in their dates of arrival in the different parts of their winter resorts, with other circumstances, seem to indicate that they come in-shore from the westward with an extended front. This, it would appear, results naturally from the set of the currents in this part of the ocean from west to east and directly toward the coast, together with the prevalent westerly winds of November, December, and January. The latter are well shown in detail on Maps 27, 47, and 49 in the "Challenger" Reports, Physics and Chemistry, vol. ii. (For currents and directions of drift in the Pacific Ocean, see especially Petermann's "Mitteilungen," 36 Band, 1890.)

While, therefore, the course and manner of this southern and eastern migration (embracing scarcely two months of the entire year) must at present remain to some extent hypothetical, the whole remaining migratory route of the fur-seal is now accurately known, and the circumstances are such as to leave little doubt that this part is

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*"Fishery Industries of the United States," vol. ii, p. 394.

correctly explained as above. It may be supposed, that to the winds and currents chiefly is attributable the concentration of the fur-seals in the vicinity of the coast preparatory to the inception of the spontaneous northward movement early in the spring.

(ii.)—*Western Side of the North Pacific.*

197. Respecting the migration-range of the fur-seals which resort to the Commander Islands, to Robben Island, and in smaller numbers to several places in the Kurile Islands, as more fully noted in subsequent pages, comparatively little has been recorded; but the result of inquiries made in various directions, when brought together, are sufficient to enable its general character and the area which it covers to be outlined. The deficiency in information for the Asiatic coast depends on the fact that pelagic sealing, as understood on the coast of America, is there practically unknown, while the people inhabiting the coast and its adjacent islands do not, like the Indians and Aleuts of the opposite side of the North Pacific, naturally venture far to sea for hunting purposes.

198. The facts already cited in connection with the migration of the seals on the east side of the Pacific, show that these animals enter and leave Behring Sea almost entirely by the eastern passes through the Aleutian chain, and that only under exceptional circumstances, and under stress of weather, are some young seals, while on their way south, driven as far to the west as Atka Island. No large bodies of migrating seals are known to pass near Attu Island, the westernmost of the Aleutians, and no young seals have ever within memory been seen there. These circumstances, with others which it is not necessary to detail here, are sufficient to demonstrate that the main migration-routes of the seals frequenting the Commander Islands do not touch the Aleutian chain, and there is every reason to believe that although the seals become more or less commingled in Behring Sea during the summer, the migration-routes of the two sides of the North Pacific are essentially distinct.

199. During the late autumn, the winter, and in early spring, the fur-seals of the western side of the North Pacific are in fact known to frequent that part of the ocean to the eastward of the Island of Yezo, the northernmost of the Japanese group, and are seen about that coast chiefly between Inobasaki and the east part of Yezo. As the prevailing winds are at these seasons off-shore, and as neither these nor any oceanic current tend to establish a drift toward the land, the fur-seals are probably much more widely scattered in proportion to their numbers, and are spread out to a greater distance from the land here, than those of the other side of the ocean are found to be during the corresponding period of stay in their winter habitat. This belief corresponds with such information as we have been able to obtain on the subject, and probably in part at least explains the fact that it has not yet been found to be a profitable enterprise to engage in pelagic sealing in this portion of the Pacific. It must further, however, be mentioned here, that no definite information has been obtained as to the northern limit of the tract which may be described as the winter habitat of the fur-seal on the western side of the North Pacific. It may therefore possibly include some portion of the waters adjacent to the Kurile Islands.

200. According to information contained in a Memorandum supplied by your Majesty's Minister at Tôkiô (Appendix B), the seals are first seen off the coast of Yezo early in November, while from other sources

it has been ascertained, that in former years, when the Alaska Commercial Company's vessel followed the southern route in her spring voyage from San Francisco to Petropaulouski, fur-seals were often seen at sea in the month of May in about the same latitude.

201. When the seals first come south in the autumn, the grey pups are often abundant not far from the shores of Yezo and about Nambu,* and from 2,000 to 3,000 are annually taken there by the inhabitants, in boats. In the Memorandum just referred to, it is stated that, "Large numbers of seals from the Russian rookeries are scattered every winter over the ocean lying off the east coast of Japan, but they are unmolested by foreign or native sealing-vessels, and only the fringe of them is touched by native fishermen in their open boats along the Nambu and Yezo coast."

202. When these seals move to the northward, in the spring or early summer, they doubtless follow a route parallel to the line of the
33 Kurile Islands, though there is nothing known to show whether they pass near to these islands, or at some considerable distance to the eastward of them. According to Mr. Grebnitsky, Superintendent of the Commander Islands, the seals travel with the northward branch of the Japan current, and are first seen on the south-western shore of Copper Island, where some of them land, while others continue their journey to the north-westward, between Copper and Behring Islands; and those which land on the northern rookery of Behring Island come to it eventually from a north-eastern direction. The same gentleman further states, as the result of his observations, that these naturally pelagic animals land thus on the Commander Islands only because it is necessary for the females to do so in order to give birth to their young; while he believes the main reason of the landing, at later dates, of the seals not actually engaged in breeding, is that during the "shedding" or "stagey" season, their pelage becomes too thin to afford a suitable protection from the water. The date of arrival of the seals on the Commander Islands is somewhat later than on the Pribyloff Islands, and the dates of leaving appear to be also later and rather more irregular in correspondence with the longer summer season and less precisely marked beginning of cold weather. In fact, in unusually mild years, a few fur-seals may generally be found about the Commander Islands all the winter.

203. According to Captain Brandt, of the Russian gun-boat "Aleut," who has had long experience of these waters, the fur-seals frequenting Robben Island, on the east coast of Saghalien in Okotsk Sea, pass through the Kurile Archipelago into the Pacific in autumn and do not go directly south into the Japan Sea; though he has seen a few fur-seals at sea not far to the north of Vladivostok.

204. It will be observed that the migration-range of the fur-seals frequenting the Commander Islands is somewhat less extended than that of those resorting to the Pribyloff Islands, its entire length being little more than 1,000 miles.

205. It is of interest here to refer to the account of the migrations of the fur-seal or "sea-cat," drawn up by the Russian Kraschenimikoff, which is supposed to be based partly on his own observations and largely on those of his fellow-traveller Steller, both members of Behring Expedition.† He writes: "The sea cats are caught in the spring and in the month of September, about the River Sheepanova; at which time they go from the Kurilskoy (Kurile) Islands to the American

* A seaport on the east coast of Nipon, near latitude 40°.

† Quoted by J. A. Allen in "Monograph of North American Pinnipeds," p. 341; from Grieves' English translation, 1764.

coast (read Commander Islands); but the most are catched about the Cape of Kronitzkoy, as between this and the Cape Shupinskoy (both on the east coast of Kamtschatka); the sea is generally calm, and affords them proper places to retire to. Almost all the females that are caught in the spring are pregnant; and such as are near their time of bringing forth their young are immediately opened, and the young taken out and skinned. None of them are to be seen from the beginning of June to the end of August, when they return from the south (*sic*, read east) with their young."

206. The remarks on the same subject made by Fleurieu in Marchand's voyage are probably in the main also based on those of Steller. He writes, referring to the last decade of the eighteenth century:

> Ces animaux quittent au mois de Juin les côtes de la presqu'île de Kamtschatka, et y reviennent, comme il a été dit, à la fin d'Août ou au commencement de Septembre, pour y passer l'automne et l'hiver. Dans les temps du départ, les femelles sont prêtes à mettre bas, et il paroît que l'objet du voyage de ces amphibies et de s'éloigner le plus qu'ils peuvent de toute terre habitée, pour faire tranquillement leur petits sur des bords solitaires, et s'y livrer ensuite sans trouble aux plaisirs de l'amour; car c'est un mois après qu'elles ont mis bas que les femelles entrent en chaleur. Tous reviennent fort maigres à la fin d'Août; et il est à présumer que, pendant leur absence, ils ne mangent que peu ou point du tout.*

207. The particular interest attaching to these quotations is, that they appear to show that at the early dates to which they refer, the fur-seal was much better known and more often seen by the natives of the coast of Kamtschatka than it is at the present day, from which it is reasonable to conclude that on the Asiatic coast as well as on that of North America the fur-seal has considerably changed its habits, as the result of persistent hunting, and has become more pelagic than it originally was.

Particulars of the same kind referring to the North American coast are elsewhere referred to in detail (§ 396 *et seq.*).

208. The mode of origination of the regular migratory habit, which has become hereditary and instinctive in the case at least of by far the largest number of the fur-seals of the North Pacific, is an inter-
34 esting question of a general kind. It is evident that the habit has grown up as a necessary result of resorting to far northern breeding grounds, while at the same time it is not essentially a part of the life history of the animal, as the breeding stations formerly occupied on the Californian coast show. It is further instructive to mention, that as the result of inquiries made on this point from those most familiar with the subject in New Zealand, the Falkland Islands, and Cape Colony, it is found that the closely related fur-seal of the Southern Hemisphere does not regularly migrate over great tracts of the ocean, but, when occupying stations where the conditions are favourable for its existence throughout the year, it merely approaches the shores and lands upon them at the breeding season. The continued presence of fur-seals about the Commander Islands in mild winters, likewise shows that even in the case of the fur-seal of the North Pacific, it requires the prompting afforded by decided changes in the seasons to keep up the regularity of its migratory habits. It has indeed been suggested, and with some probability, that the seasonal changes in the temperature of the sea itself may have much to do with impressing regularity on the annual movement of migration, or, in other words, that when this temperature falls below or rises above certain limits, the seals begin to move southward or northward in search of less frigid or less heated waters. The data at hand are, however, insufficient for a detailed study of this point.

* "Voyage autour du Monde, 1790–92," tome V, p. 65.

(iii.)—*Distribution at Sea.*

209. The distribution and mode of occurrence of the fur-seals at sea when congregated in their winter habitats on the two sides of the North Pacific, and while migrating, have already been noticed. While the information on these points is not as complete as could be wished, it is sufficient to show in a general way how the fur-seal is affected in its movements by currents, drift, and winds. In speaking of its food and feeding habits on a subsequent page, it further becomes apparent in what manner the seals congregate and travel in following certain food fishes. It appears to be rather in consequence of such circumstances, operating conjointly upon these pelagic animals, than to any ruling gregarious tendencies while at sea that they become collected into "schools" or groups of greater or less dimensions. This at least is the result of the examinations made during the summer of 1891 in Behring Sea, where, though two or three seals were often seen actually in company, and occasionally as many as six or eight, the general rule seemed to be that each seal was pursuing its own course, travelling, sleeping, feeding, or sporting in the water, without reference to others in the vicinity. This is clearly shown by the observation that even when passing through an area at sea in which the seals would be noted as abundant, they are as a matter of fact usually separated by distances much too great to enable any single animal, or any group of two or three individuals, to be in any way cognizant of the presence of the next adjacent individual or similar group. Apart from seals met with near the shores of the breeding islands, the densest "school" found by us was on one occasion about five miles to the westward of the land of St. Paul Island, where about forty seals were counted in a distance run of two miles. In all other cases, it was exceptional to meet with seals to the number of four to a mile run, while two to a mile run was much above the average even when passing through areas of abundance. It is thus evident that the seals had been brought together in such areas of abundance by reason of common conditions rather than by their own volition.

210. In order to arrive at as complete a knowledge as possible of the actual distribution of the fur-seal in Behring Sea, a circular was prepared, in which it was requested that regular seal logs should be kept on the British cruizers, and, through the kindness of the Commander-in-chief on the Pacific Station, communicated to their Commanders. The work was taken up with enthusiasm by the various officers, and maintained throughout the season. Careful observations of the same kind were also made on our own steamer, the "Danube," and subsequently, through the courtesy of the United States' Commissioners, copies of the track-charts, and observations made of seals by the various United States' cruizers, were supplied. Information on the same subject was also sought in various other ways, such as by inquiry from the captains and hands of sealing-vessels met in Victoria and Vancouver, and from the inhabitants of various places touched at during the summer.

211. Little or nothing has previously been put on record with regard to the distribution of the fur-seal in Behring Sea during the months of their stay there, for though the pelagic sealers had formed their own opinion as to the best regions for carrying on their avocation, they naturally did not make these public, and it is believed that, in some cases at least, they were rather inclined to keep such knowledge as they had gained by experience entirely private. What has been actually published on this subject depends principally upon meagre

observations or ill-founded conjectures such as the resident agents on the breeding islands have been able to make with their limited opportunities. The circumstances in 1891 were, however, exceptionally favourable for acquiring information of a comparable kind on the question of distribution.

212. The observations at command for 1891 practically cover pretty thoroughly the period of about two months during which seals are ordinarily taken by pelagic hunters in Behring Sea, extending from the middle of July to the middle of September, and they are much more complete for the eastern than for the western part of the Behring Sea.

213. On consideration of the material to be dealt with, it was decided that it might be most advantageously divided into two periods of about a month each, the first including all dates from the 15th July to the 15th August, and the second those between the 15th August and the 15th September. All the lines cruized over in the first of these periods were plotted on one set of maps, and those in the second period on another. The parts of these tracks run over during the night, and in which seals therefore could not well be observed, were indicated on the maps in a different manner from the day tracks, as far as possible; and with the assistance of the logs, the numbers of seals seen in certain intervals were then entered along the various routes in a graphic manner. The places in which pelagic sealers had reported seals to be abundant or otherwise, as well as those in which sealing-vessels were found at work by the cruizers, and other facts obtained from various sources, were also indicated on the maps.

214. Without attempting to enter into further details here as to the methods employed, the general results arrived at may now be briefly described:

It is evident, in the first place, that the seals are most abundant in the water in the immediate vicinity of the shores of the breeding islands, this abundance of seals extending often not more than half-a-mile from the fronts of the breeding grounds, and seldom for 3 or 4 miles in such a way as to be at all notable. In the case of the Pribyloff Islands, it is also observed that seals were numerous in both the monthly periods in the tract included in a general way between St. Paul and St. George Islands, though they differed much in this respect even at nearly approximate dates. It is further clearly shown that the Pribyloff and Commander groups form the main centres of abundance of seals in Behring Sea during the summer; but that while this is undoubtedly the case, the seals are not found to decrease in numbers with any approximation to regularity in zones concentric with the islands,—always excluding the seals in the immediate neighbourhood of the shores.

215. It is therefore not possible to outline a series of zones in which the number of seals present will bear an inverse ratio to the distance from the islands. It is, however, possible to draw an approximate limit for a region about the Pribyloff group, which will roughly define the area of abundant seals at sea during each of the two monthly periods chosen. In the case of the region about the Commander Islands, data, though almost wanting for the first monthly period, and but scanty for the second, are sufficient to indicate a general mode of distribution similar to that demonstrable in the first case. Within the areas of abundant seals, these animals are, however, by no means regularly distributed, even at any particular fixed date, but are scattered in irregular patches in the diffuse character already described, and are very often thickest locally towards the outer limits of the area.

216. Beyond these areas, seals are found more or less sparsely scattered over a great part of Behring Sea, which in the first period extends,

in the longitude of the Pribyloff Islands, from the Aleutian chain northward to about the 59th degree of latitude, includes the whole vicinity of the western Aleutian Islands, and spreads again to a greater width with the Commander Islands as a centre.

217. In 1891 the area of abundant seals about the Pribyloff Islands appeared to be not only changed in form, but considerably reduced in size in the second monthly period; while that of scattered seals was not only changed in form, but much enlarged in area. It appears, that in most years, in the later summer this area of scattered seals extends to the north-east of the Commander Islands, quite to, or even beyond, the 60th parallel of north latitude. This particular extension is probably to be explained by the drift of that branch of the Japan current which flows through the western part of Behring Sea, assisted by the prevailing southerly winds in the same part of the sea in June and July;* while the comparatively restricted spread in a northward direction in the eastern part of the sea may be similarly connected with the general movement of the water from north to south in that region.

36 218. The northern outline of this wider region of scattered seals in the second monthly period, may be practically assumed as that of the normal range of the fur-seal to the north, and is adopted as such on one of the accompanying maps. On other maps the outlines of the areas of abundant and scattered seals in each monthly period are shown. The extreme northern range of the fur-seal, however, extends far beyond the line just referred to, for Captain Healey and Lieutenant Jarvis, of the United States Revenue Cruizer "Bear," state that fur-seals are occasionally seen by whalers as far as St. Lawrence Island, and even on the northern shores of that island. They also found in 1891, at Cape Tchaplin or Indian Point on the Siberian coast, the natives in possession of a few skins of old bull seals, which they stated had been taken near St. Lawrence Island. Our own inquiries on that island and at Plover Bay on the Siberian coast were purely negative as regards fur-seals, though hair seals, including the rare banded or ribbon seal (*Histriophoca fasciata*), were being taken by the Tuskis in nets. It was, however, further ascertained that one or two instances had occurred of old male seals being taken near St. Michael, not far from the Yukon mouth, and it is therefore probable that a line drawn from Cape Tchaplin to this place may be considered as defining the extreme maximum northern range of the fur-seal of the North Pacific. This limit, however, appears to be but rarely attained, and then only by mature and old males, which have probably become useless on the breeding rookeries, and have been driven or have wandered away alone far from their kind.

219. With the idea that the general distribution of the fur seals in Behring Sea, from the breeding islands as centres, might show some direct relation to the prevailing winds, meteorological observations made during the summer by ourselves and on several of the cruizers were sent to the Meteorological Department of Canada, and were there, under the direction of Mr. Carpmael, analyzed by Mr. Stupart, who prepared wind-roses for each of the monthly periods for the vicinity of the Pribyloff Islands. The observations taken near the Commander Islands were, however, insufficient for such treatment. The wind-roses thus obtained for the vicinity of the Pribyloff Islands were then compared, both in a direct and in an inverse sense, with the outlines of the area of abundant seals, but without bringing to light any manifest connection of the kind conjectured, though there appeared to be a slight balance of evidence in favour of the belief that the seals tended rather to

* See Maps 37 and 39, "Challenger Expedition Report," Physics and Chemisty, vol. ii.

travel against the wind than with it. So far, therefore, as this evidence goes, it seems to show that the seals found at sea, even in the regions in which they are not very far from the breeding islands, are not animals which have only temporarily left the islands, for in this case their movements would almost certainly show some obvious relation to the prevailing wind and weather. The fact that they do not do so, in itself suggests that the seals met with at sea really form practically independent pelagic schools of a diffuse kind.

220. An examination of the area surrounding the Pribyloff Islands in which seals were abundant in 1891, together with such other facts bearing on former years as could be obtained from pelagic sealers, indicates that the maximum limit to which this area may reach from the islands in the summer months in any direction is not more than about 180 miles, and it is probable that similar conditions obtain with regard to the Commander Islands.

221. Respecting the number of fur-seals to be found at sea within the areas of abundance above referred to, and exclusive of those frequenting the islands and their immediate shores, it is difficult to attain to anything like certain results. The endeavour has been made, however, in a tentative way to reach some roughly approximate estimates, by finding the number of seals actually seen in measured lengths of runs in or across such areas, chosen as typical, and made at different times in both monthly periods. The results obtained varied somewhat widely, as might be expected, not alone in consequence of the actual difference in density of the seals, but also from circumstances connected with the weather and the state of the sea surface. The observations made were, however, combined in a general average, which, when thus treated, showed about one seal noted to each mile run. On the assumption (which cannot be very far from the fact) that on the average a width of half-a-mile was efficiently scanned from the deck, this would give a mean number of two fur-seals to each square mile of sea surface within the area referred to.

222. As to the much larger area of scattered seals, it is still more difficult in this case to arrive at any even approximately accurate results, for though long runs were often made without meeting any seals, limited patches of relatively abundant seals were sometimes met with, and these seemed to be quite irregularly distributed. It appears probable, however, that the density of seals within these areas does not exceed, but may reach, about one to five square miles.

37 223. No connected body of observations is in existence as to the actual abundance of seals at sea and their distribution in various parts of their range in different years, but more attention has naturally been paid to this since the development of pelagic sealing. The following references on this subject have been found in documents already published, or obtained in evidence. They are together sufficient at least to show that the distribution of the seals at sea, particularly as between different parts of their winter habitat, is subject to considerable variation.

1866. Judge J. G. Swan says, that between 1857 and 1866 fur-seals were very scarce about Cape Flattery, and that it is only since the last-mentioned year that they have begun to resort to the vicinity of Fuca Strait in such great numbers.*

[This statement is probably based on the number of skins actually taken by the Indians, and may in part, at least, be explained by the

* "Fishery Industries of the United States," vol. ii, p. 394.

fact that for a number of years the Indians scarcely hunted the fur-seal (§ 562).]

1868. 5,000 fur-seals are said to have been killed about the Strait of Fuca in this year.*

1869. Bryant speaks of the abundance of fur-seals off the coasts of Oregon, Washington, and British Columbia in this as compared with former years.†

1872. Captain Lewis, then connected with the Hudson's Bay Company, stated that in 1872 "immense numbers of fur-seal pups and yearlings" were observed in the ocean off Vancouver Island and the entrance to Fuca Straits. That he had never during thirty years of previous service on the north-west coast seen or heard of such an abundance of fur-seals. He thought that "8,000 or 9,000 skins, chiefly pups and yearlings," were taken.‡

1873. Captain Lewis, previously cited, stated that in this year very few fur-seals were seen off the British Columbian coast. His figures showed only "600 or 700 skins; these were all older ones."§

1866 to 1880. Writing in 1880, Judge J. G. Swan says: "This unprecedented number of seals which made their appearance, a number which seems to have increased every season since 1866, will give employment to a larger fleet of vessels another year.‖

1880. Fur-seals were reported in great abundance 100 to 300 miles off-shore, by vessels making for the Strait of Fuca.

According to Judge J. G. Swan,¶ the canoe catch of Neah Bay (Makah) Indians in this year was 1,558.

1881. Mr. Marsilliot, second engineer of United States Revenue Cutter "Wolcott," states that in this year fur-seals were very abundant in Puget Sound, and were taken as far in as Hoods Canal.**

1888. Judge J. G. Swan, in a letter to Senator Dolph, says: "Seals are reported as being unusually numerous this season, and are in myriads. California steamers report running through one herd which extended 100 miles, and the seals appeared to be as thick as they could swim."††

1889. Captain J. D. Warren, who has been actively engaged in sealing for twenty years, states that during that time he has noticed no diminution in the number of seals at sea, but, if any change at all, an increase.‡‡

1889. Captain W. O'Leary, with four years' experience, says: "I do not think there is any decrease in the number of seals entering Behring Sea. I never saw so many seals along the coast as there were this year, and in Behring Sea they were more numerous than I ever saw before."§§

1890. Mr. A. R. Milne, Collector of Customs at Victoria, summarizing the information obtained by him from sealers respecting that season, says: "I can now safely repeat what I have already said and written, that owners and masters do not entertain the slightest idea that the seals are at all scarcer." He adds, that statements made to a contrary

* Dall. "Alaska and its Resources," p. 493.
† "Monograph of North American Pinnipeds," p. 332.
‡ Quoted by Elliott, United States Census Report, p. 166.
§ United States Census Report, p. 166.
‖ "Fishery Industries of the United States," vol. ii, p. 397.
¶ Ibid., p. 394.
** Quoted by Judge J. G. Swan in Ball. "United States Fishery Commission," vol. iii, p. 206.
†† Parliamentary Paper [C. 6131], p. 192.
‡‡ Ibid., p. 356.
§§ Ibid., p. 357.

effect in the press are believed to have been inspired by interested motives.*

1890 and 1891. Mr. R. H. Pidcock, Indian, reports that the Indians of northern port of Vancouver Island say the fur-seals have been less plentiful than before during these two years.

Mr. Harry Guillod, Indian Agent for the west coast of Van-
38 couver Island, says that the Indians report an unusual abundance of seals in these two years, while they were scarce for three years previously.

1891. Mr. C. Todd, Indian agent at Metla-Katla, on the northern part of the coast of British Columbia, states that the Indians believe the number of fur-seals to have been about the same for the past twenty years.

Respecting the number of seals met with at sea in this year, the following statements occur in the sworn evidence of sealers:

C. J. Kelly: Seals are as plentiful this year from the coast (of British Columbia) to the Shumagin Islands as last year.

Captain W. Petit: From Cape Flattery north, seals were more plentiful than any year since 1886; in Behring Sea, as plentiful as in former years.

Captain W. E. Baker: Along the coast to the Shumagin Islands seals were as plentiful in some places as the year before; in others, more plentiful. No material difference in my average catch for last four years. No decrease in number of seals in late years.

Captain A. Bisset: Seals were as plentiful last year as in previous years along the coast.

Captain T. M. Magnesen: Seals were more plentiful last year than I had ever seen them, both in Behring Sea and along the coast.

Richard Thompson: Seals were as plentiful last year as the year before.

Andrew Laing: No decrease in seals last year.

Captain W. Cox: Seals were as plentiful last year as ever before.

Captain C. Hackett: Found the seals as plentiful on the coast last year as in former years. Seals were more numerous in Behring Sea than I ever saw them before.

Captain C. McDougal: Found the seals thicker in Behring Sea than ever before.

A. Douglas: Had sealed seven years. Noticed no decrease in number of seals last year. Thought they appeared a little shyer. Saw more seals and larger bodies of seals in Behring Sea than ever before.

L. L. McLean: Seals were more plentiful last year. Never saw seals so plentiful in Behring Sea before (in seven years' experience).

1892 (January). Judge J. G. Swan, in a letter, states that Indians report seals unusually abundant off Cape Flattery and about Barclay Sound.

(B.)—*Food of the Fur-seal.*

224. The broad and general facts of the annual migration habits of the fur-seal do not appear to depend primarily upon the pursuit of food, but rather seem to be governed by the instinctive resort to the breeding islands in the spring, followed by the equally instinctive departure for more southern latitudes on the approach of the cold and snows of winter. The distribution and migrations of the animals upon which the seals depend for food doubtless have, however, a consider-

* Parliamentary Paper [C. 6253], p. 78.

able influence on the movements of the seal in a subordinate degree, and particularly upon its abundance or otherwise at various times in different parts of its summer and winter habitats. Some of the last observations quoted have a direct bearing on this point.

225. Most of the information gained on this subject is the result of special inquiries made among the native hunters of different parts of the coast, and of questions addressed to the pelagic sealers. The knowledge procured by these people is obtained in various ways. Seals are often seen at sea actually pursuing fish of different kinds, or coming to the surface with a fish held in the jaws. The stomachs of seals killed at sea are frequently well filled with fish, and are, from motives of curiosity sometimes examined. It is also often noticed that a seal, when taken into a canoe, vomits the entire contents of the stomach. Another, and, though less direct, scarcely less trustworthy source of information, is the locally-observed coincidence in abundance of seals with that of certain kinds of fish.

226. Without quoting at length the numerous statements obtained on this point, it may be said that the general tenour of the evidence shows, that while the fur-seal has been known to eat almost all kinds of fish, including cod and even halibut, its favourite diet consists of small fish, of which the herring, probably from its size and from its gregarious habit, is altogether the most important. The appearance of seals toward spring in the inner waters along the coast of British Columbia, and the numbers seen there at any particular place or time, bear a very close relation to the occurrence of shoals of herring, while some of the most notable cases of the penetration of seals into the narrow channels about the estuary of the Nass, Skeena, and Knight's Inlet have
39 been directly traced to their pursuit of the ulachan, or candle-fish, then resorting to these places to spawn.

227. Another animal, which may be classed as a special food of the fur-seal, is the squid or cuttle-fish. Evidence of this has been obtained at various points along the British Columbian coast and in the Commander Islands, and of the seal stomachs opened by us on the Pribyloff Islands, besides a very few fish-bones the beaks of squid were about the only traces of food found. It is perhaps further worth noting in this connection, that Captain Morrell many years ago stated, with special reference to the fur-seal of the Falkland Islands, that they are said to live on the squid.*

228. It is particularly along the British Columbian coast, within the winter habitat of the fur-seal, that the connection of its movements with those of the herring has been traced. Unfortunately, little is accurately known about the migratory habits of the herring in any part of the world, and the information respecting the migrations of this fish on the West Coast is exceedingly imperfect. It is probable that here, as elsewhere, the migrations of the herring are somewhat capricious, and that this fish regularly approaches the shores in large schools only about the spawning season, while its movements at other times are largely governed by the relative abundance on different parts of the surface of the ocean of the minute crustaceans and other pelagic organisms upon which it lives. This, again, depends on the winds and currents and temperature, and to the interaction of these several factors, the sudden appearance or disappearance of bodies of fur-seals, in various parts of their winter habitat particularly, may doubtless be traced.

* Dall, "Alaska and its Resources," p. 492.

229. In the summer habitat within Behring Sea, it has been noted by some of the more intelligent pelagic sealers that fur-seals are found to be numerous where "whale-food" abounds. The "whale-food" met with in these seas consists of similar minute organisms to those composing "herring-food," and the seals are doubtless in search of the smaller fishes which may be living upon this food. A further circumstance having the same general bearing is the frequently-observed association of seals at sea, particularly in Behring Sea, with abundance of single fronds or tangled masses of drift kelp. This no doubt depends partly on the fact that the kelp affords shelter and a measure of protection not only to the minute pelagic organisms, but also to the various small fishes which prey upon these. It is, however, to be explained for the most part by the circumstance, that the drift kelp accumulates in areas of eddy or slack-water between the various marine currents, into which these minute organisms with surface-fishes and the fur-seals themselves naturally drift.

230. The most important point to be gathered from these observations is, that the fur-seal is not usually a bottom feeder, and that it is not necessary that its fishing-grounds should be found upon submarine banks situated at such moderate depths as those to which the seal may attain by diving or "sounding," a hypothesis often advanced by theorists, but which finds little basis in the known facts.

231. That the fur-seal is essentially a pelagic surface feeder, is further shown by the fact that it is not known to resort habitually to the best fishing banks in Behring Sea, such, for instance, as the Baird bank, and that fish, such as the cod and halibut, inhabiting water of some depth and feeding along the bottom, are often found in considerable numbers, not only near the breeding islands of the seal, but even in the immediate vicinity of the breeding rookeries of these islands. Such fish are actually caught at various seasons by the natives of the Pribyloff Islands within 1 or 2 miles of some of the largest rookeries on the south side of St. Paul Island, and not more than 2½ or 3 miles off the rookeries on the north shore of St. George Island. On one occasion, while at anchor for a short time within less than half-a-mile from the largest rookery on Behring Island, at Cape Yushin, over twenty cod, with some other fishes, were caught from our steamer with two or three hand lines, in water not more than 6 or 7 fathoms in depth.

232. Some particulars are given on a later page respecting the abstention from food of the fur-seals while remaining upon or about the breeding islands. It appears to be certain that the mature males doing duty on the breeding rookeries do not feed at all during the breeding season, and that for some time, at least several weeks, after landing, the breeding females do not leave the rookery grounds in search of food. There is no apparent reason why the "holluschickie," or young males, should not go to sea in quest of fish. Singularly enough, however, though animals of this class have been killed by hundreds of thousands upon the breeding islands under all conceivable conditions of weather, and often within less than an hour of their deportation from their hauling-grounds, the almost universal testimony is to the effect that their stomachs are invariably found to be free from food.

233. With a view to obtain such direct information on this subject as might be possible, the stomachs of seals killed in our presence were examined; and though the results of these examinations, noted below, do not entirely confirm the statement just referred to, they show a remarkable absence of food. The number of seals which it was thus possible to examine was of course small.

On St. George Island, twenty seals were killed on the 1st August in our presence. These were selected from a drive made from the nearest part of the Great Northern Rookery, to the killing ground about half-a-mile distant, and had been about three hours off the rookery before they were killed. Of these twenty young males, the stomachs gave the following results:

Seventeen: no food whatever, in most a little slimy matter, froth or bile, and often a few lively worms.

One: a handful of small pebbles.

One: a clot of brownish blood.

One: an isopod crustacean, about an inch in length, and a few fragments of fish bones.

234. On St. Paul Island, the 3rd August, the stomachs of ninety-eight young males were examined. These were selected from a drive made from Zoltoi sands to the killing ground, a distance of about 2,000 feet, from which they had been driven early in the same morning, possibly two or three hours before being killed. The contents of these stomachs, in addition to a few worms present in many cases, were as follows:

Sixty-five, contained nothing, or, in some cases, a pinch of sand, or a small quantity of slimy or frothy matter.

Seventeen, contained pebbles, sometimes several, in other cases but a single pebble.

Six, showed a rather notable quantity of bright yellow bile.

Four, contained some blood, generally somewhat changed in colour by the action of the gastric juices, and in one or two cases clotted.

Three, contained the horny armatures or beaks of squids only; one of these a single beak, another two beaks, and the third three beaks.

One, held some pebbles, the ear-bone of a fish (cod?), and a few pieces of broken dead shell.

One, held some pebbles and broken pieces of dead shell, with a single beak of squid.

One, showed a very small piece of kelp only.

235. From the large North Rookery on Behring Island, 5th September, an adult male or "seacatch," two females, and an unweaned pup, were driven directly from the rookery ground, about 200 yards distant, and killed, by permission of the authorities, for presentation by us as specimens to the British Museum. The stomachs of all four were completely empty, with the exception of a few worms in those of the three adults. Not only the pup, but the females, and even the old male, were fat and in good condition.

236. Respecting the pebbles frequently found in the stomachs of the fur-seal, it has been suggested by Mr. Elliott that these may be swallowed for the purpose of destroying the worms often observed. It has further been suggested that such stones have incidentaly found their way into the seals' stomachs attached to sea-weeds, or zoophytes eaten by the seals; but little can be said in favour of this theory. The habit is one, however, not peculiar to the fur-seal, but common to most pinnipeds.* The largest of those pebbles actually collected from the stomachs of the seals above noted as having been killed on St. Paul on the 3rd August, is a flat stone, 1½ inch in length and 1 inch in breadth, but much larger ones have often been found. It is probable that individual stones do not as a rule remain very long in the stomach; for about one-half of those collected on this occasion were rough scoriaceous

*"Monograph of North American Pinnipeds," p. 354.

fragments, showing little or no sign of attrition. The other moiety was more or less perfectly rounded, and a certain number showed a peculiar fine polish, probably to be attributed to wear in the stomach of the animal. About one-seventh of the entire number represent rocks not found on the Pribyloff Islands, or, if occurring at all, only very exceptionally as erratics carried there attached to the roots of drift trees or kelp, or brought upon floating ice. These have, in all probability, been borne by the seals themselves from some distant localities. The remaining and much the larger part of the collection consists of ordinary volcanic pebbles, such as might be picked up anywhere on the beaches of the Pribyloff or the Aleutian Islands.

41 237. The Aleut foreman in charge of the rookeries on Behring Island stated that the young seals began to swallow pebbles when about four months old, after which they become thin. If correct, this statement would appear to mean that it is about the time at which the young are weaned that this habit is first developed. He also said that, when seals of mature age were observed to swallow stones, they were (or became) thin, and this may possibly be regarded rather as the effect of the gastric worms than of the pebbles. The same man added, and entirely as an idea original with himself, that when the seals first arrived at the Commander Islands each year, they contained stones unlike those to be found upon the islands, and which he conjectured had been picked up upon the Kamtschatka coast. In the stomach of the seal pup examined for us by Dr. Günther at the British Museum, it will be noted that a stone was found, although the pup was supposed to be about seventeen days old only. (Appendix D.)

238. On several of the rookery- and hauling-grounds of the Pribyloff Islands there is to be seen a notable abundance of small rounded pebbles, just such as those found in the stomachs of the seals. As these lie upon the surface, often far above any possible action of the sea, and as there is no evidence of beaches of such rolled stones due to former periods of greater submergence upon the Pribyloff Islands, the conjecture appears to be legitimate that these have, in the course of years, been brought and accumulated by the seals themselves. Whether voided or disgorged from time to time upon the rookery grounds, or whether accumulated by a slower process consequent on the occasional death of seals upon these grounds, cannot be decided. The suggestion here made, it should be stated, is due to Mr. J. Stanley-Brown.

239. The blood noticed in some of the stomachs may probably be attributed to the laceration of the tongue by the teeth, or to congestion and extravasation of the nasal membranes brought about by the severe ordeal of driving. Its presence in the alimentary tract is at least scarcely explicable as the result of internal lesions.

240. In the middle of September, when paying a last visit to the Pribyloff Islands, several of the young seals of the same year, then well grown, were observed upon water-washed rocks, either playing with or eating fronds of kelp. Mr. J. C. Redpath stated that he believed the seals actually ate the kelp as a part of their food, but from personal observation no statement could be made to this effect, and it is considered very doubtful.

241. Colonel J. Murray informed us that, in 1890, the young seals or pups killed as food for natives on the Pribyloff Islands about the 4th and 8th November, had not even at that date been weaned, but were found full of milk. He further stated, that such pups had been driven in the very early morning to the killing grounds, and sometimes not killed till late in the evening, thus insuring a period of at least fifteen

hours from the time at which they had had any possible connection with their mothers. Others, again, had not been killed till the following morning, enlarging the necessary time of abstinence from suckling to twenty-four hours from the time of last suckling. These observations appear to show that the young seals are capable of laying in a very considerable reserve in the way of mother's milk, and have important bearings on the general question of the time during which the mothers may absent themselves from the breeding rookeries at earlier dates in the history of the young.

242. Perhaps the most notable feature in regard to this food question, and one directly consequent on the prolonged abstinence of the seals from food while on and about the islands, is the entire absence of all excrement on the rookeries and hauling grounds. Captain Bryant appears, however, to be the only author who has specially mentioned this particular and striking fact. He writes:

> The fact of their remaining without food seems so contrary to nature, that it seems to me proper to state some of the evidences of it. Having been assured by the natives that such was the fact, I deemed it of sufficient importance to test it by all the means available. Accordingly, I took special pains to examine daily a large extent of the rookery, and note carefully the results of my observations. The rocks on the rookery are worn smooth and washed clean by the spring-tides, and any discharge of excrement could not fail to be detected. I found, in a few instances where newly-arrived seals had made a single discharge of red-coloured excrement, but nothing was seen afterwards to show that such discharges were continued, or any evidence that the animals had partaken of food. They never left the rocks except when compelled by the heat of the sun to seek the water to cool themselves. They are then absent from the land for but a short time. I also examined the stomachs of several hundred young ones, killed by the natives for eating, and always without finding any trace of food in them. The same was true of the few nursing females killed for dissection. On their arrival in the spring they are very fat and unwieldy, but when they leave, after their four months' fast, they are very thin, being reduced to one-half their former weight.

42 In a note appended to the above by Professor Allen, that gentleman writes: "Steller states that in the numerous specimens he dissected he always found the stomachs empty, and remarks that they take no food during the several weeks they remain on land; Mr. Dall confirms the same statement in respect to the present species, and Captains Cook, Weddel, and others, who have had opportunities of observing the different southern species, affirm the same fact in respect to the latter. Lord Shuldham long since stated that the walrus had the same habit, though its actual fast seems somewhat shorter than those of the eared seals. . . . This singular phenomenon of a protracted annual fast during the period of parturition and the nursing of the young—the season when most mammals require the most ample sustenance—seems not wholly confined to the walruses and eared seals. So far as known, however, it is limited to the pinnipedes; and, excepting in the case of a single member, the sea-elephant, to the two above-named families. By some of the old writers the sea-elephant was said to feed sparingly, at this time, on the grasses and sea-weeds that grew in the vicinity of its breeding places, but the weight of the evidence in respect to this point seems to indicate that this species fasts similarly to the eared seals and walruses during the period it resorts to the land to bring forth its young."*

243. The fur-seals on Juan Fernandez are likewise reported, and without qualification as to sex, to abstain from nourishment during the breeding season: "Toward the end of the month of June these animals

* On the Eared Seals. "Bull. Mus. Comp. Zool.," vol. ii, No. 1, pp. 101, 102. See also Senate, Ex. Doc. No. 32, 41st Congress, 2nd Session, p. 5.

come on shore to bring forth their young, and remain to the end of September without stirring from the spot, and without taking any kind of nourishment."*

Though not at the time aware of Bryant's statement, above quoted, the absence of excrementitious matter was one of the first points noted and remarked on by us after landing upon the Pribyloff rookeries, and it is to the absence of such matter alone that the continuous herding together on one spot for several months of so many thousand animals is on sanitary grounds rendered possible. It became obvious that so soon as the seals commence again to feed, it must be absolutely necessary for them to abandon their crowded quarters on shore. The evidence thus afforded, that the females do not feed to any notable extent until the young are practically weaned, or, at all events, until very late in the suckling season, is perhaps more definite than that given in any other way.

(C.)—*Physical Characteristics of the Pribyloff and Commander Islands, and Nature of the Breeding Grounds.*

244. The principal breeding places of the fur-seal of the North Pacific at the present time, are the Pribyloff and Commander Islands, and, omitting certain exceptional periods dependent chiefly on the interruption of natural conditions brought about by the slaughter of seals, it appears that the Pribyloff Islands have, within historic times, been frequented by larger numbers of seals than the Commander Islands. Recent changes, depending chiefly on the circumstances which have occurred in the first-named islands, have, however, at the present time, produced a nearer approach to equality in numbers as between the two groups of islands than has been normal. Of other breeding places in the North Pacific still known to be frequented by smaller numbers of seals, Robben Island is the most important, but of these some notes are given later.

245. While it has not been disproved that the fur-seal may bring forth its young upon detached floating masses of the great kelp of the Pacific, particularly in cases where the gravid female has been prevented from reaching the breeding places on shore in due time, such instances, if they occur, must be quite exceptional. As to the alleged birth of young at sea, the result of careful inquiries of various kinds shows that if this should occur without the presence of any resting place, the young probably perish, for, though undoubtedly capable at birth, and even if cut from the mother before birth, of swimming for a shorter or longer time, the young is not suited at once for a pelagic existence, and authentic instances in which females with recently-born young have been seen at sea are very rare. It may be mentioned here, however, that some of the Indians of the northern part of the coast of British Columbia aver that they have seen the female fur-seal swimming with its young on its back in the manner said to be practised by the sea-otter, and actually observed in the case of the hair-seal, but this statement has not been fully authenticated.

246. The normal habits of the fur-seal are such as to require a
43 safe terrestrial retreat at the season during which the young is born, where the young may remain undisturbed for a period of three or possibly four months, or till such time as they may be able to assume the pelagic habits of the adult. It is therefore primarily for the purpose of giving birth to their young and suckling them that the female fur-seals seek the breeding islands. At other seasons they do

*Quoted in United States Census Report, p. 122.

not require to land anywhere, and, as a matter of fact, they very seldom do so. It has frequently been stated that the mating of the male and female must be accomplished on shore, but there is ample proof that this is not true, and that the male and female come together with equal facility in the water. It is thus evident that the ruling motive for the landing and sojourn ashore of the seals, is the birth of the young, and that the habit of the males in frequenting the breeding rookeries and seeking the females there after the young have been born has grown up from this or in connection with it. With many animals the male has a function to fulfil on the breeding places in protecting the young, but in this instance the males are neither called upon, nor do they show any natural disposition, to exert themselves in this particular direction.

247. The Commander and Pribyloff Islands when originally discovered in 1741 and 1786 respectively, were entirely uninhabited by man; nor has any evidence been found since on either group to show that man had ever previously visited them. With the exception of St. Matthew Island, which, by reason of the late date to which the ice often lingers about its shores, is not suited to become a habitual breeding resort of the fur-seal, these two groups of islands are the only ones in Behring Sea, or, for that matter, in the whole northern part of the North Pacific, which were not either peopled by natives or regularly visited by them on their hunting and fishing expeditions. To this cause rather than to any other is to be attributed the fact that these islands became the permanent breeding resorts of the fur-seal. The cool and humid summer climate may doubtless in itself have been congenial to the seal, but in this respect, and also in the temperature of the sea surrounding them, well-marked differences occur as between the two groups, while almost any of the very numerous islands of the Aleutian chain afford surroundings so similar in the matter of climate that they would undoubtedly have afforded suitable breeding places if similarly uninhabited. The islands of this chain were, however, then thickly inhabited by the Aleuts, and as the fur-seal, when resorting to and remaining upon the shores during the breeding season, is practically defenceless and incapable alike of resistance or effective flight, while its flesh and fat are highly prized by all native tribes as food, it is probable that no breeding stations could long be maintained there or on any other lands similarly peopled. Captain Scammon nevertheless states that fur-seals formerly occupied, in addition to the Pribyloff and Commander Islands, "several of the more isolated points in the Aleutian chain."* He does not, however, particularize further, or say whether he speaks from personal observation, or from what source his information was obtained.

248. The fact that fur-seals of the same species formerly had breeding-places on such islands as the Farallones of the Californian coast, under climatic conditions perhaps as different as it is easy to imagine, is alone sufficient to show that climate was not the ruling factor in the choice of the Pribyloff and Commander Islands by the fur-seals of the North Pacific. If further evidence be required it is furnished by the facts relating to the species of fur-seal inhabiting the southern hemisphere, which, though differing from that of the North Pacific in structural points, is so similar in habit as to furnish a case in point. Here also it is found that all the notable breeding places or rookeries were discovered upon insular lands to which man had never come, and on which, during this critical period of the annual cycle of its life, the fur-seal was also exempt from the attacks of other terrestrial animals to which it would have been

*"Marine Mammalia," p. 155.

an easy prey. This being granted, it is, perhaps, a legitimate subject of speculation what the conditions in the North Pacific were before the present races peopled its shores and nearer islands, and more particularly before the islands of the Aleutian chain were peopled. Dall has shown it to be probable that even these islands were inhabited from a very remote period, that the population was throughout of an Innuit type, and that the occupation of the islands proceeded from east to west.* It can scarcely be doubted that in still earlier times the fur-seals resorted to many or to all of these islands at the breeding season, but that as the islands became occupied successively by the predecessors of the modern Aleuts, this animal, from the nature of its habits, was the first to find them no longer safe or congenial. When discovered by the Russians it was estimated that the population of the chain amounted to 50,000, and in this fact alone a sufficient reason for the absence of breeding rookeries of the fur-seal is found.

44 249. The Pribyloff Islands are almost entirely, and the Commander Islands are chiefly, composed of rocks of volcanic origin, but in this respect they are by no means singular, and no physical characteristics dependent on this circumstance are ruling ones in respect to their fitness as breeding places.

250. The Pribyloff group consists of two rather large islands, St. Paul and St. George, separated by a distance of about 39 miles, with two small islets, Walrus Island and Otter Island adjacent to St. Paul. Of these, Otter Island is about a mile in length, while Walrus Island is a mere flat rock about a quarter of a mile in length. The seal rookeries are all situated either on St. Paul or St. George, and those on St. Paul are considerably the more important. St. Paul Island is about 13 miles in length by 6 in breadth, while St. George Island is about 14 miles in length, by 5 miles in greatest breadth, with a somewhat inferior area.

251. As already stated, both are composed of volcanic rocks, probably referable to the latest stages of the Tertiary period, and consisting largely of basalts or basalt-like rocks in the form of nearly horizontal beds, often distinctly columnar where broken off in cliffs. There are, however, certain beds of scoriaceous material which are included between those representing originally molten matter. These islands appear, in fact, to be the result of old submarine volcanic eruptions, spreading their material in pretty regular layers on the sea-bed, and eventually rising above the surface of the shallow eastern plateau of Behring Sea, either because of the mere accumulation of material, or perhaps more probably with the aid of a local elevatory movement of somewhat later date. Since the original time of their appearance above the sea, their margins have been worn into sea-cliffs, or beaten back to form stretches of sandy beach, by the action of the waves; but in consequence of the absence of older rocks, most of the material for these beaches, as well as that of the sand dunes which characterize parts of the coast (particularly on St. Paul Island) is not siliceous, but is composed of the comminuted material of the local volcanic rocks.

252. The surface of St. Paul may be described as consisting of rounded hills, of which the highest attains an elevation of about 600 feet, connected by flat land, much of which is but little elevated above the sea. Its shores are not often bold though forming cliffs of moderate height in some places, particularly about its western end. St. George is, on the whole, considerably higher, and contains very little low or flat land.

* "Contributions to North American Ethnology," vol. i.

Its surface consists of hills and upland moors, and its highest parts exceed 900 feet. The shores of St. George are generally steep and bold, and much of its border is formed by cliffs of considerable height, which constitute the breeding places of innumerable birds.

253. No tree or shrub occurs on either island, of which the surface is covered, when not too rocky to support any growth, with grass and herbaceous vegetation, mingled with moss and lichen on the higher parts. Neither island affords any harbour, and it is necessary to anchor under a weather shore and to effect a landing either with an off-shore wind or in calm weather. The situation of the village on St. Paul is, however, such that a landing can generally be effected there either on one side or other of the long south-westerly-extending peninsula terminating in Reef Point.

254. The breeding rookeries and hauling grounds (or tracts which the bachelors and other seals not actually engaged in breeding frequent) are, of course, confined to the immediate vicinity of the coast-line on both islands. The seals seldom land and never remain on Walrus Island, and though in former years many are said to have hauled out on Otter Island, and some still do so, this is not known to have been occupied as a breeding station.

255. All the existing breeding rookeries on St. Paul and St. George Islands were visited and examined by us during our first visit to the islands about the end of July, and some of them were subsequently re-examined on our second and third visits in the months of August and September respectively, for the purpose of noting the changes in the distribution and habits of the seals at various seasons. So much has, however, already been written in description of the topography of the various rookery grounds, particularly by Mr. H. W. Elliott, that it is not here necessary to enter into any minute description of them. It will serve all practical purposes and will tend to leave the main question involved unobscured, if the several rookeries are merely characterized in a very general way, and if their differences and common characters are subsequently treated of together.

256. There are on St. Paul Island at the present time seven recognized breeding rookeries, of which the names and general characters are as follows:

(i.) *Zapadnie Rookery.*—This consists of two parts, which may be called West and East Zapadnie respectively, separated by a small bay with sandy beach, upon which the seals do not remain. The rookery ground of both parts faces to the south-east, and consists of rather regular slopes rising from the edge of the sea, and more or less thickly strewn with angular or sub-angular basaltic blocks.

(ii.) *Tolstoi Rookery.*—This rookery faces to the north-west, on the other side of English Bay. The ground occupied by the breeding seals is, for the most part, a steep and rugged slope, strewn with angular blocks, and broken by jutting masses of solid rock. At its north-east end the slopes become lighter, and it merges into the open and smooth slopes of Middle Hill, which constitute an important hauling-ground frequented by bachelor seals or holluschickie.

(iii.) *Lagoon Rookery.*—Facing to the south-west, and open to the full sweep of the sea only in bearings between south-west and west. In consequence of the protection afforded by the long Reef Point, this rookery ground is the most sheltered of any on either of the islands. The ground actually occupied by the breeding seals is a narrow and low reef of well rounded boulders, which separates the sea from a shallow lagoon.

(iv.) *Reef Rookeries.*—Occupying both sides of the outer part of the long promontory known as Reef Point, and facing to the north-west and south-east. The north-western slope, often called Garbotch, is rather steep, and a part of the rookery-ground occupied on this side consists of a narrow fringe of rocky shore overlooked by low basaltic cliffs. A narrow ridge, which is worn bare and occupied as a hauling ground by holluschickie in the early part of the season, and is frequented by all classes of seals at a later period, separates the north-western from the south-eastern side of Reef Point. On the south-east side there is a wide border of flat land but little elevated above the tide, upon which the greater part of the seals of the rookeries is found. Almost the whole of the rookery ground of the reef is plentifully strewn with angular masses of rock, though occasional smooth spaces also occur. The higher parts of the Reef Point consist very largely of a bed of volcanic scoriæ, lying compact and much in its original state, and forming a fine hard surface considerably different from that found on most of the rookeries.

(v.) *Lukannon and Ketavie Rookeries* form practically one rookery; they slope generally eastward, and in parts are much broken by the irregular jutting out of the solid rock and the many angular masses which have detached themselves from it.

(vi.) *Polavina Rookery.*—This faces to the south-eastward and stretches irregularly along the shore for nearly 1½ miles. The rocky shore is here bounded on the landward side by a range of low irregular cliffs, perhaps averaging 40 feet in height, and the breeding seals for the most part occupy the upper part of the beach along the base of the cliffs, together with such breaks and hollows as exist in the cliffs and a wide rocky reef near the sea level at the southern end of the rookery ground. A certain proportion of the breeding seals, however, take up stations upon the upper edge of the cliffs, and later in the season they move irregularly back upon the low plateau composed of bare volcanic tufa which rises very gradually toward the distant base of Polavina Hill.

(vii.) *North-East Point Rookery.*—This is the most important breeding place upon either of the islands, and might perhaps be more correctly described as a series of rookeries than as a single one. North-East Point is a low peninsula of quadrangular form, connected at one of its angles by a narrow neck, consisting of sandy flats and high dunes, with the main island. Hutchinson Hill, probably about 150 feet in height and near the northern side of peninsula, is its highest point. The rookery ground runs along the eastern, northern, and north-western shores almost continuously, though in some places—and particularly in the immediate vicinity of Hutchinson Hill—it is much wider than in others. Nearly all this length of shore is strewn thickly with rocky fragments, which as far as the highest tides reach are usually well rounded, but farther back are still angular or sub-angular. Between Hutchinson Hill and the sea, there is a considerable width of rock-strewn flat land resembling that of the south-east side of Reef Point, and coinciding with the most important portion of the rookery.

257. On St. George's Island there are now five recognized rookery grounds, four on the northern coast and one in Zapadnie Bay on the southern coast:

(i.) *Zapadnie Rookery.*—This breeding ground is more or less perfectly divided into two parts, one lot of seals occupying a rough bouldery flat immediately back of the beach, another the slope of a hill a little further to the south.

(ii.) *Starry Arteel Rookery.*—The ground here occupied by the breeding seals is a particularly steep slope, which faces to the eastward and is broken off at one side, to the north, by the shore cliff, which prevents the seals when they land from reaching the breeding grounds directly.

(iii.) *North Rookery.*—This is the most important breeding
46 ground on St. George Island, and irregularly occupies nearly a mile of the shore. It is supposed to contain about half the entire number of seals resorting to this island. The shore is here characterized by low irregular cliffs, with occasional breaks which afford access to the low plateau above. Most of the breeding seals are, however, strung along not far from the sea, and gather into larger groups wherever the width of the lower rocky shore is greatest.

(iv.) *Little Eastern Rookery* is comparatively small, and occupies a piece of shore not unlike that of many parts of North Rookery.

(v.) *Great Eastern Rookery.*—This rookery spreads at its western end part-way up the slopes of a steep and somewhat rocky hill, while its eastern end runs along the base of the rather high cliffs, on a very rough and rocky beach forming there a narrow strip just above the wash of the sea.

258. An examination of the various rookeries on the Pribyloff Islands alone, is sufficient to show that the seals are by no means exacting in regard to the precise character of the ground occupied. They do not require a southern or a northern aspect, and the statement that they land naturally upon the first part of the coast reached on their course from south to north is contradicted by the position of most of the rookeries of St. George Island. Nor do they appear to seek specially either sheltered or exposed situations, though most of the rookery sites are of the latter character. Their breeding ground may be nearly flat, or very steeply inclined, and on it they may be exposed to the driving spray from the waves or removed to some distance from the sea and at some height above it. The feature most peculiar to the rookery grounds, and common to most of them, is the profusion of detached angular masses of rock, which depends upon the ease with which the basaltic rocks of the Pribyloff Islands break up into such blocks under the local climatic influences. But this cannot be assumed to be an essential requirement of the seals, for they are found to be equally at home on beds of well water-worn boulders and on flats and slopes locally free from stones or rocky projections.

259. Most of the rookeries on the Pribyloff Islands are characterized by extensive off-lying beds of kelp, which indicates a gradually shelving rocky bottom, and implies that any very heavy sea will be broken and reduced in force before it actually falls upon the land. This may be a desideratum, but it is not a necessity, as some examples show, and the kelp-beds are by no means confined to those parts of the shores adjacent to the rookeries.

260. It appears possible to mention only two conditions which have been avoided by the seals in the choice of their rookery grounds: these are mud and loose sand. On muddy ground the fur is doubtless apt to become uncomfortably clotted, and the sand if driven by the wind or splashed about by rain is probably also irritating to them. Shifting sandy ground besides renders the always clumsy locomotion of the seal when upon the land additionally difficult; but it may be noted that sandy beaches appear to be well liked by the seals when they haul out temporarily, and are not actually established for breeding purposes. On most of the rookery grounds, away from the actual beach, the character of the soil is such that it becomes beaten down between the projecting

rocks into a hard and nearly smooth floor, a circumstance which depends in part on the incorporation with it from year to year of the felted hair which is shed by the seals themselves during the stagey season.

261. Behring and Copper Islands, forming the Commander group, differ very considerably in physical aspect from the Pribyloff Islands, though like them they are entirely destitute of either arboreal or shrubby growth, and are largely covered by grasses. These two islands form parallel elevations running in north-west by south-east bearings, and separated by a least distance of 26 miles. Copper Island, which is furthest to the eastward, is separated by 190 miles of ocean from Attu Island, the westernmost of the Aleutian chain. Behring Island is again removed by a distance of 95 miles from the nearest part of Kamtschatka, and though the high volcanic mountains of the peninsula may in clear weather be seen from the island, the latter is probably never under any circumstances visible from the mainland. It is, nevertheless, rather remarkable that the islands of this group had never been inhabited by man until their discovery and occupation by the Russians in 1741, as the distance from the mainland is not so considerable as in itself to afford a completely satisfactory explanation.

262. Behring Island is about 50 miles in extreme length, with a width of nearly 20 miles at its northern and widest end. From this it tapers gradually but irregularly to Cape Maniti, its south-eastern extremity. The northern half of the island is low, with a rolling or nearly flat surface, much of which is described as consisting of "tundra" land. It includes one large lake, which discharges on the northern shore. The southern half is higher, and appears, as seen
47 from the sea, to consist of a mass of rounded hills of heights varying from several hundred to perhaps 1,000 feet. The shores of the higher part of the island are very generally bordered by cliffs or steep scarped rocks, with narrow V-shaped valleys breaking through them to the sea. The greater part of the island is composed, so far as examined, and also on the authority of M. Grebnitsky, of well stratified Tertiary rocks, generally shales and sandstones, but basalts and volcanic breecias appear upon some parts of the coast, and generally from the projecting reefs and rocks. There are no harbours, but a fair anchorage with off-shore winds may be found at Nikolski, the only permanent settlement, situated on the west coast of the island, about 10 miles from its north end.

263. Copper or Medni Island is about 30 miles in length, with a greatest width of about 5 miles to the south of the middle of the island. It is a partially submerged mountainous ridge, much higher and bolder than Behring Island, and apparently almost wholly composed of volcanic rocks, which are not, however, modern, like those of many parts of the Aleutian Islands, but probably of Tertiary age. Its surface is exceedingly irregular and comprises very little flat land of any kind, while the shore is often bordered by bold and rugged sea cliffs, particularly along the south-eastern side. The shore-line of this side is sinuous, but that of the north-east side is broken, and comprises several considerable bays, but no good harbours for large vessels. There are three small settlements on the coast: Glinka, Karebelny, and Preobajenski, the last-named being the most northern, and the only one continuously occupied at other seasons than the time of sealing. The highest parts of Copper Island probably attain an elevation of 3,000 feet.

264. Along the shores of both of these islands there are extensive fields of kelp, but these are not more notable than those to be found in similar situations in the Aleutian, Pribyloff, and other islands of

the southern part of Behring Sea or along the Alaskan and British Columbian coasts,—a fact which is perhaps worthy of note in connection with statements which have been made as to the peculiar suitability of these islands to the graminivorous and now extinct Rhytina, as well as from its possible bearings on the habitats of the fur-seal.

265. Upon Behring Island the fur-seals are killed in the immediate vicinity of the two rookeries, where salt-houses are established. On Copper Island, the rookeries, situated on the south-west coast, are classified under two groups, from one of which the seals are driven across to Karebelny and from the other to Glinka for slaughter, this being supposed to be necessary owing to the rough character of the coast where they are actually situated.

266. Further evidence of the adaptability of the seals to circumstances is found in comparing the physical character of the rookeries on the Commander Islands with those of the Pribyloff Islands. On Behring Island, the North Rookery, situated at Yushin Point, towards the western part of the north coast of the island, is the largest. It occupies a flat stretch of rocky reef, which runs seaward in a triangular form, with its wide base against the land and a length of about a quarter of a mile. The surface of the reef is irregular, and much of it stands above high-water mark, though in heavy gales few parts of it can escape the more or less direct wash of the surf. To the west of the reef proper, and connected with it, is a wide dry beach or bar of sand, which is also occupied by seals, but chiefly by holluschickie or bachelors. On the landward side, the reef is overlooked by low rocky banks overgrown by rank grasses and weeds, and between these and the reef proper are some small irregular grassy flats and pools of salt water. Here the seals never go, though there is no apparent reason why this upper plateau might not be used as a hauling-ground or "parade," which would resemble several of those adjacent to rookeries on the Pribyloff Islands.

267. The South Rookery on Behring Island, situated at Poludenni Point, on the south-west side of the island and about midway in its length, was not visited by us. It is, however, much smaller than the last, and is described as presenting very similar characters. In both cases there is ample room for expansion of the rookery ground without breaking its continuity.

268. On Copper Island, the circumstances are again quite different. The rookeries and hauling-grounds are here scattered along about 15 miles of the south-east coast, extending from about the middle of the island to its southern end. All the rookeries are small; and though distinguished by various local names they are not well defined, but are connected by irregular scattered colonies of breeding seals strung along the narrower and less favourable parts of the shore. The whole shore is bordered by high irregular cliffs, here and there broken by ravines, or by more moderate though always steep and rough rocky and grassy slopes. Flat rocky reefs run out irregularly from the shore below, with abundance of rocks awash and large fields of kelp.

48 Opposite the breaks in the cliffs are bouldery or gravelly bays, and both these and the larger areas of reef are irregularly occupied by the seals. At Palata Point, near the southern extremity of the island, the seals occupy a steep slope of earthy appearance, which they have completely bared of vegetation to a distance estimated at 150 to 200 yards back from the shore, and a height of, say, 200 feet. This rookery in its general character more closely resembles Starry Arteel than any other of the Pribyloff Islands. It is distinctively a breeding rookery, as no holluschickie, it is said, ever haul out near it.

269. On Copper Island, however, as on Behring Island, M. Tillman, the Superintendent in charge for the Russian Government, states that even when the seals were more abundant than in 1891, there has never been any lack of room for expansion of the rookeries and hauling grounds, and that there are many other localities in all respects equally well suited for occupation by the seals, though these usually occupy the same or nearly the same stations year after year. It is thus evident on the Commander as on the Pribyloff Islands, that no very special or peculiar physical features are required to render certain spots suitable as the breeding resorts of the fur-seal. It is necessary to emphasize this point, as the question has been obscured by a tendency to surround it with a certain mystery, and to affirm that certain spots, and those alone, are available as rookery grounds.

270. The fact remains to be explained, however, that the breeding seals actually do resort with great persistency to the various recognized rookeries, congregating in these spots and leaving other neighbouring parts of the shores of the breeding islands untenanted. There is indeed some evidence to show that the same old bulls or "beach-masters" from year to year occupy the same places, and it is quite probable that the instinct which induces many animals to return to the same place in succeeding seasons, may influence the fur-seal. There is, however, another and very obvious practical cause for the reoccupation of old rookery grounds. As a rule, these extend some distance beyond the reach of the sea, and are there by the continuous presence and movement of the seals not only bared of vegetation, but beaten down into smooth and hard flats and slopes, and therefore constitute as long as they are occupied each year, and from this very cause, the places most congenial to the seals. The fact that the first of the seals to arrive in the spring, coast along the shores and land for a time in a timid and tentative way only, shows that they are in search either of their old breeding stations or of suitable new ones, and there can be no doubt that they are largely guided in their choice by the very manifest traces of former occupation by their species which the rookery sites present.

271. Not the least evident of these signs is the peculiar and very distinct odour of the rookery grounds. It is certain that the sense of smell is more trusted in by the fur-seal as an indication of danger than either that of sight or hearing (the eye and possibly the ear also being probably adapted rather to use in the water than in the air) and it is more than likely employed in relocating the old breeding grounds in each succeeding year. This is the opinion of the natives, who have had the best opportunities for observation, and is borne out by many other facts, some of which are elsewhere alluded to in this report.

272. The reasonable consideration of this subject has been somewhat obstructed by the assumption of an entirely unwarranted fixity in the position and area of the ground occupied each year by the breeding and non-breeding seals of each rookery site. For the very reason, apparently, that such fixity is not found in nature, it appeals to the imagination of writers of a certain class. While it may therefore be admitted that the several rookeries have on the whole a notable degree of permanency, this undoubtedly arises from their continued occupation each year, rather than from any peculiar physical conditions in the places chosen; and while the animals are clearly averse to sudden change, the boundaries of individual rookeries when not naturally limited, evidently from year to year increase in one direction and diminish in another, in consequence of circumstances which may at

first be accidental; but which are acquiesced in by the seals and rendered for a time permanent. This is particularly the case with the hauling-grounds or resorts of the holluschickie, which hang about the borders of the breeding rookeries proper, and thus in the course of years, a very considerable area of ground in any particular locality may come to bear traces, in polished rock surfaces and otherwise, of the presence of seals, in consequence of the natural oscillations of the whole body of animals which have occurred in the course of many generations of seal life.

273. It is unfortunate that no such precise or consecutive observations have been made, with the aid of plans, measurements, and fixed marks, as to enable the changes in rookery- and hauling-grounds to be followed out from year to year, either on the Pribyloff or Commander Islands. It will be sufficient, however, to refer to a few known
49 facts which are independent of very close observation, but bear on the point in discussion. One of these is the remarkable differences noted in various years between the relative proportion of seals visiting the two islands, St. Paul and St. George. These are referred to in connection with the historical notes on those islands. Of the same purport is the fact that two rookeries existed within historical times at a place called Maroonitch, on the north coast of St. Paul, which even maintained their position in a reduced form in the season of great scarcity of seals in 1836, but which have since absolutely disappeared, though there is no reason to suppose that they were at any time heavily drawn upon, if at all disturbed by man. Elliott states that in 1872–74, when at the prompting of the natives he examined this shore, he was still able to trace the old limits of these rookeries tolerably well by the polished edges of the rocks.* Another, though never large, rookery, named Nah-speel, situated near the village on St. Paul Island, has become extinct more recently; while as a fact, in the opposite direction, the formation of the Lagoon Rookery within the memory of natives still living may be cited.†

274. St. George Island again, the natives assert, was in early Russian times, entirely peopled by sea-lions, and the fur-seal began to frequent it only in later years. Though more doubtful than the other cited instances, there appears to be some reason to believe that there is a basis of fact in this statement also.‡

275. An examination of the shores of the Pribyloff Islands, shows that statements which have occasionally been made, to the effect that all ground available for the purposes of seal life has been fully occupied within historic times, are incorrect, and that the most extended limits of even temporary occupation indicated by any marks still remaining, do not prove that the area available and suitable for breeding rookeries and hauling grounds has ever been occupied up to its full capacity. From this it follows, that even if restricted for breeding purposes to these particular islands, the fur-seal has never reached its natural limit in numbers in consequence of a want of space for breeding ground but only as the result of other causes.

276. As a further result of the examination of the physical characteristics of the rookery grounds, it may be stated that the necessary con-

*United States Census Report, pp. 49, 59.

†Ibid, p. 52.

‡United States Census Report, p. 58. When Lutké visited the islands in 1827, about 1,000 sea-lions were killed each year on St. George, and 300 or 400 on St. Paul; but fur-seals were also abundant on both. "Voyage Autour du Monde," tome i, p. 265.

ditions, and even the most favourable conditions, are by no means confined to the Pribyloff and Commander Islands, wide rocky beaches overlooked by sea-cliffs, and with all the characteristics of those of Copper Island, are found on many of the islands of the Aleutian chain, and though low plateaux bordering the shores, or gentle slopes rising from the beaches are not so common, there are plenty of them to be found in different parts of this great series of islands, some of which, as for instance the Semitchi Islands, almost precisely resemble St. Paul in physical characters. Again, on St. Matthew and Hall Islands, localities well suited for breeding places of the fur-seal occur, but as already indicated, the inhabited character of the Aleutian chain, and the long continuance of ice about the St. Matthew Islands probably explain the absence of rookeries in these places.

(D.)—*Annual Progress of Events in Seal Life on the Breeding Islands.*

277. In order to follow out the various questions connected with the life history of the fur-seal, it is necessary to bear in mind the main points involved in that important part of each year during which it resorts to the breeding islands. A summary of the facts in this connection will be given here.

So far as regards the Pribyloff Islands, the fullest details under this head may be found in the works of several writers, particularly in those of Bryant, Elliott, and Maynard. There is very little room for difference of opinion as to the main facts, and most of the points in which divergence is found may be explained by the tendency to give too rigid dates and too precise an aspect to the various events and changes; or to the circumstance that with the growing depletion of males upon the islands and its attendant results, the dates and habits formerly observed by the seals have also, to some extent, changed from year to year. It will be sufficient to give a general and very brief résumé of the principal events of the breeding season based chiefly on the combined observations of the writers above cited, and afterwards to refer in somewhat greater detail to a few important points connected with these and with the general organization of seal life on the islands.

278. The first seals to arrive at the islands in spring are the full-grown males or "bulls" of about six years old and upwards. A few stragglers sometimes reach the islands as early as the middle of April, and from about the 1st May to the 10th or 15th June they continue to arrive, but in much larger numbers towards the latter part of this period. On arrival, these full-grown males, generally known as "beachmasters," or "seecatchie," take up stations on the old rookery grounds to await the coming of the females.

With the main body of full-grown bulls a large proportion of the "bachelors," or younger males, also appear.

279. The time of arrival and landing of the gravid females appears to depend directly on the approaching close of their period of gestation. A few usually land as early as the 1st June, but it is, under normal circumstances, between the middle of June and the middle of July that the great body of females come ashore, and at or about the same time most of the yearlings of both sexes, or such of them as resort to the islands, also generally arrive, though it appears that in some years, at least, the main body of seals of this class lands somewhat later.

On landing, the females, or "cows," are taken possession of by the old bulls, and very soon after landing the young are born. Within a few days the females are again in heat and under normal circumstances, with an adequate supply of virile males, the female is at once served.

The landing of gravid females does not usually cease till about the 20th or 25th July, and in certain years has been continued much later by females which have evidently been served unusually late in the previous season.

280. All this time the bulls jealously keep the females they have secured within the boundaries of their particular harems, but about the end of July, or early in August, the breeding rookeries begin to lose their compact character. The beach-masters, or many of them, return to the sea, or haul out here or there on the beaches, while younger males crowd upon the rookeries, and the females continue going and coming between the sea and their young on shore. Before the middle of August a large proportion of the females are at all times to be found swimming and disporting themselves in the water close to the rookery ground, and the young collect in masses along the edges of the shore and rocks, from which they make short excursions into the sea.

281. About the middle of August, most of the seals found upon the Pribyloff Islands become what is known as "stagey," in consequence of the shedding of the hair and under-fur. This condition appears to continue, more or less definitely, for about six weeks. The fact, elsewhere mentioned, that practically no "stagey" skins are ever taken at sea, appears not only to show that the change in pelage is rendered definite and well marked by prolonged resort to the land, but also that during this period the seals frequenting the islands do not go to any great distance from their shores.

282. In October the seals begin generally to leave the islands, the oldest and strongest being the first to go. Nearly all the bachelors, or holluschickie, have left before the 10th November, and before the end of that month all the pups of the year, which have now changed the first black coat for a grey one, also go. A very few seals, however, generally linger on into December, and in exceptional years have been known to stay on into January and even into February.

283. The seals resorting to the Commander Islands, which belong, at least in the main, to a different migration-area, and reach the islands from the south-westward, are thought by those acquainted with both these and the Pribyloff Islands to be somewhat later in the date of their arrival than those of the latter islands. It is stated that here as on the Pribyloff Islands the seals have been later than usual in coming in recent years. In 1891, we found the "stagey" season was just beginning on the Commander Islands on the 1st September. The first killing of seals took place on Copper Island in the same year on the 22nd June. Generally speaking, some seals can be found to kill on this island (in which the dates are slightly in advance of those in Behring Island) as early as the 1st June.

(E.)—*Ages at which Males reach Virility, and the Females produce Young.*

284. The ages at which the male and female seals respectively reach maturity and become able to take part in the procreation of their species, as well as the number of years during which the male remains virile and the female fertile, are questions of very practical importance from two points of view. In the first place, they enable us to trace out the effect of the killing of seals of special ages or sexes at certain times, and, in the second, to estimate the time necessary for any improvement in numbers to follow from the sparing of the younger seals on the rookeries.

51 285. Veniaminov arrived at the conclusion that the female gives birth to its first young in its fifth year, and bases a somewhat

intricate and ingenious series of calculations partly on this supposition,* but there is now a very general consensus of opinion among those who have studied this question on the Pribyloff Islands to the effect that the females are covered at or shortly after the expiry of the second year from the time of their birth, and bear young in the third year from that time or early in the fourth year of their age. The same opinion was found to be held upon the Commander Islands, and there is every reason to believe that it is essentially correct.

286. Both males and females leave the islands at the close of the season in which they are born as "grey pups," the sexes being undistinguishable to all outward appearance. In the following season they are classed as yearlings, and it is probable that a large proportion of these either do not land upon the islands at all or stay only for a short time on shore. Such of the yearlings as are found upon the islands, however, both males and females, consort with the holluschickie or bachelors.

287. It appears, further, to be certain that the males arrive at virility in their fourth year, and between this time and that in which they attain their full strength and size and are able to maintain their places on the breeding rookery, when six or seven years old, they are often spoken of as "half-bulls" or "reserves." They actually serve in the latter capacity, and cover many of the females which escape the attentions of the older males upon the rookery grounds, and in such cases the act of coition is usually accomplished at sea.

288. While the points just referred to may be supposed to have been ascertained with moderate certainty, nothing is certainly known as to the maximum ages attained by seals of the two sexes respectively, and very little as to the total number of young which a female may bear during the continuance of her fertility, or the number of years during which the male retains his virility. Elliott conjectures that the females may live to an age of 18 or 20 years. Bryant gives his reasons for supposing that 12 years is about the average attained by the males.† Veniaminov thought that the females in their prime bring forth every year, and as they grow older, every second year. He states that, according to persons familiar with them, each female may produce in the course of her life ten or fifteen young or even more.‡ He admits, however, that this is very uncertain, and the whole subject is, in fact, beset with almost insuperable difficulties. All that is certain is that both males and females continue to perform their functions as breeders for a considerable number of years.

289. From what has been said as to the number of years required by the respective sexes to reach maturity, it follows that any great loss of young in the year of their birth can only begin to make itself apparent on the rookeries, in the case of females, after the lapse of three years, and in the case of males after five or six years. Thus in the event of the killing of all or nearly all the young males of a certain age, in any one year or series of years, a void of smaller or larger dimensions is created in the supply of full-grown males for the rookery grounds, which can only be partially bridged by the continuance on the rookeries of the older and enfeebled males, which have passed their natural term of retirement. If such killing is maintained from year to year, the deterioration in the supply of virile males for the requirements of the females, though slow and spread over several or many years, must be continuous. Moreover, the lowering of the standard weight

* Quoted by Elliott in United States Census Report, p. 141 *et seq.*
† "Monograph of North American Pinnipeds," p. 407.
‡ Quoted by Elliott in United States Census Report, p. 141.

of skins which has actually occurred in late years on the Pribyloff Islands, because of the scarcity of males of 3 or 4 years of age and which permits the killing to embrace those of 2 years old and even yearlings, is the most effectual method possible of cutting off the supply of virile males at the fountain head, and of enlarging the void in male seal life to alarming proportions.

290. Details of this kind, with their observed effects on seal life, are cited in abstract in the historical notes elsewhere given (§ 810 *et seq.*), but it is impossible to adequately represent in summarized form the whole of the facts bearing on this point. Captain Bryant's observations, as quoted by Allen, should be referred to.*

291. The diminution which has culminated in late years on the Pribyloff Islands recalls the criticism made by Lutké, when he visited these islands in 1827. Lutké writes:

La précaution de séparer les gros mâles d'avec ceux qui doivent être tués, est nécessaire pour entretenir la multiplication; mais cette précaution est-elle suffisante pour cela? Si tous les jeunes sont exterminés, d'où sortiront à la fin les gros
52 mâles? Les chasseurs expérimentés ont observé que les ours marins vivent de quinze à vingt ans; il en résulte qu'avec cette méthode dans vingt ans il ne doit plus rester un seul.†

(F.)—*Requisite proportions of Sexes.*

292. Though each full-grown male or "seacatch" holding his place on the rookery ground endeavours to obtain and keep about him as many females as possible, there is a limit to the number which may be advantageously held by a single male, and when adult males are found in abundance, it is not easy to pass this normal limit; but, on the other hand, when, in consequence of a paucity of adult males in proportion to females, the harems become too large, the females are irregularly served, served too late in the season, or, in some cases, may altogether escape efficient service, with resulting irregularities in times of birth of young in the next year, or an addition to the number of barren females.

293. The proper proportion of adult males to females cannot be ascertained by inspection of the Pribyloff rookeries as they are at present, because of the obvious and generally acknowledged deficiency of virile males; but in the earlier years of the control of these islands by the United States, Bryant estimated the existing proportion as about one male to fifteen females, or, as indicated by other statements by the same writer, as one to nine or twelve.‡ Elliott, a few years later, and subsequent to the date of certain changes in organization of the seals described by Bryant, writes:—"I found it an exceedingly difficult matter to satisfy myself as to a fair general average number of cows to each bull on the rookery; but, after protracted study, I think it will be nearly correct when I assign to each male a general ratio of from fifteen to twenty females at the stations nearest the water, and from there back in order from that line to the rear from five to twelve."§ M. Grebnitsky, Superintendent of the Commander Islands, as the result of his prolonged experience, states that the proportion of one adult male to ten females should not, as a rule, be overpassed, and that one to twenty may be considered as a maximum limit. Captain Blair, long familiar with the fur-seals of the Asiatic coast, informed us, in speaking of Robben Island, that the number of males now existing there, viz., one

* "Monograph of North American Pinnipeds," p. 398 *et seq.*
† Lutké "Voyage autour du Monde," tome i, p. 261.
‡ Monograph of North American Pinnipeds," pp. 385, 390.
§ United States Census Report, p. 36.

adult male to twenty-five females, was far too small. Lieutenant Maynard, again, says: "The bulls are polygamous, having from five to twenty cows each; so that the number of them upon the rookeries is not more than one-tenth of that of the cows.*

294. It may thus be very safely assumed that the ratio of virile males of full age, cannot be allowed to exceed the proportion of one to twenty, without serious danger of harm to the breeding rookeries, and the certainty of grave irregularities on them; and it is necessary to bear this fact in mind in endeavouring to appreciate the meaning of the present condition of the rookeries of the Pribyloff Islands, where, as elsewhere pointed out, these conditions have, for a number of years, not been realized.

(G.)—*Coition.*

295. An erroneous statement concerning the manner of life of the fur-seal, which has important bearings in various ways, but which has naturally arisen and has been as naturally maintained in consequence of the too exclusive attention paid by most writers on this subject to the breeding islands, is that the fecundation of the female is, and can only be, accomplished on shore. Bryant has, however, distinctly stated that copulation very often occurs in the water, and in the description of seal life prepared by him for Professor Allen, he adds: "When there was a full supply of breeding males copulation occurred mainly on the breeding grounds, the half-bulls (or reserves) participating to only a limited extent, and was rarely seen to occur in the water. Since 1874, owing to the decrease in the number of breeding males, a much larger proportion of the females receive the males in the water, so that on any still day after the 20th July, by taking a canoe and going a little off shore, considerable numbers may be seen pairing and readily approached so near as to be fully observed.† In another place the same
53 gentleman is even more precise, writing: "Owing to the position of the genital organs, however, coition on land seems not to be the natural method, and only rarely—perhaps in three cases out of ten—is the attempt to copulate under such circumstances effectual." Mr. W. H. Dall, again, in a manuscript note supplied to Professor Allen, says: "They [the females] sleep in the water lying on their sides, with the two flippers [of the upper side] out of the water, and receive the male in the same position."‡

296. Special inquiries made by us on this particular subject have fully confirmed Bryant's original statements, the evidence obtained including that of four or five gentlemen who have had long experience with the Pribyloff and Commander Islands, and several intelligent and observant hunters who have been engaged in sealing at sea.

297. The particular importance attaching to this subject depends on the circumstance that the possibility of connection being accomplished at sea, and the greater frequency of this habit caused by the dearth of adult males on the rookeries, enables us to explain in great measure the irregularity, which has in late years much increased, of the date of birth of the young. It shows, in fact, that the time of impregnation of the female is not necessarily comprised within the period during which she seeks the shore for the purpose of giving birth to the young.

* Maynard's Report, Ex. Doc. No. 43, 44th Congress, 1st Session, p. 3. This passage is incorrectly quoted by Elliott in his Census Report, where Maynard is made to state that the seals have each from twenty to fifty cows.

† Senate, Ex. Doc. No. 32, 41st Congress, 2nd Session, p. 5, "Monograph of North-American Pinnipeds," pp. 385, 405.

‡ "Bull. Mus. Comp. Zool.," vol. 1, Part I, p. 100.

(H.)—*Age at which the Young Swim.—Number of Young at a Birth.*

298. It has already been noted, that evidence such as to show that the young can swim for a time at or immediately after birth, has been obtained from a number of sources, though it is, at the same time, improbable that under any circumstances the young is at first fitted to maintain its existence for any length of time in the open sea. This is, however, not a matter of any great importance, for it is evidently the normal method for the young to remain for some weeks ashore before venturing even to enter the sea.

299. It, nevertheless, appears to be quite possible that, under exceptional circumstances, the female might succeed in rearing her young while only occasionally resorting to the land and while moving from place to place. There is no reason to believe that the fur-seal is less adaptable in this respect than the hair seals, and of one of the latter (*Ptoca vitulina*) Professor Allen quotes Mr. John Cardeaux to the following effect: "The female has one young in the year; and, as these banks [upon which they breed] are covered at flood, the cub, when born, must make an early acquaintance with the water."* One of the authors of this Report has, moreover, seen the same species (17th of June, 1878) in the southern part of the Queen Charlotte Islands, breeding upon tidal rocks, from which, when alarmed, the mothers took to the sea, each carrying her young upon her back, the heads of the mother and young seal coming to the surface simultaneously at each rise. Upon Indian authority, the same habit has been, as elsewhere noted, observed in the case of the fur-seal.

300. The date at which the young normally begin to swim has, however, like many others, been given an altogether undue fixity and precision. Thus Elliott states that by the 8th or 10th August the pups born nearest to the water first begin to learn to swim; † and Bryant gives the 20th August as the date at which they first take to the water; ‡ while as early as the 28th July, in 1891, great numbers of pups were actually observed by us to be swimming along the edges of the rookery grounds and climbing in and out over the rocks, and this in spite of the fact that it is acknowledged that the seals now arrive at the islands at dates later than they did in former years. On the 14th September two pups were even seen swimming and alone at distances of 40 and 70 miles respectively to the westward of the Pribyloff Islands.

301. As a rule, but a single pup is produced at a birth, and, though this rule is not without exceptions, it may be used in any estimates of the natural rate of increase of the seals. Maynard admits that occasional cases of twins have been recognized on the Pribyloff Islands, notwithstanding the difficulty of arriving at certainty as to such a matter under the circumstances which there obtain. The Haidas and the Tshimsians state that they have frequently found two unborn pups in a female seal when killed, though a single pup is much more common. Chief Edensaw, many years ago, saw a female in the act of giving birth on Rose Spit, Queen Charlotte Islands; one pup had been born, and when he killed the mother he found another still unborn.

302. It is perhaps further worth noting, in this connection,
54 that those most familiar with the closely allied fur-seal of the South African Coast state that, as a rule, two pups are produced

* "Monograph of North American Pinnipeds," p. 591.
† United States Census Report, pp. 40, 42.
‡ "Monograph of North American Pinnipeds," p. 387.

at a birth; while on the Australian coast it is said that the female generally brings forth a single pup, sometimes two.*

(I.)—*Distances to which Seals go from the Breeding Islands in search of Food, and Times of Feeding.*

303. The feeding habits of the seals, and the distances to which seals engaged in breeding on the islands may be supposed to go for food, as well as the period of the breeding season at which excursions in search of food begin to be made, are important because of their direct bearing on the limits of protection which might appropriately be accorded about the islands at the breeding season.

304. The full-grown bulls, or beachmasters, holding stations on the rookery-grounds, undoubtedly, in the majority of cases—if not invariably—remain on duty throughout the breeding season and to the close of the rutting period without seeking food. The young again, born in any particular season, are not weaned, or not fully weaned, nor do they, under normal circumstances, leave the immediate vicinity of the shores till the time of their final departure.

305. It is thus only the classes of bachelor and female seals that can, under any circumstances, be found leaving the islands in search of food during the breeding season. Of the females, the yearlings associate with the bachelors. Some of the two-year-olds may seek the vicinity of the rookery-grounds for the purpose of meeting the males, but probably they do not long remain there, while it is believed that most of them are covered at sea. Barren females, again, whether without young from age, from an insufficiency of males, or inefficient service, are not in any way permanently attached to the islands at this time.

306. The remaining—and, at the time in question, most important—class is that of the breeding females. These, some time after the birth of the young and the subsequent copulation with the male, begin to leave the rookery-ground and seek the water. This they are able to do because of the lessened interest of the beachmasters in them, and more particularly after many of the beachmasters themselves begin to leave their stands. Thus, by about the middle of August, probably only one-half of the females, or even less, are to be seen at any one time on the rookeries. Snegiloff, the native foreman in charge of the rookeries on Behring Island, expressed the opinion that the females first leave their young and begin to frequent the water about a month after the birth of the young. Bryant says about six weeks.† Other authorities are less definite on this point, but, according to observations made by ourselves, the mothers and young were present on the Pribyloff rookeries in approximately equal numbers in the last days of July, while, on the same rookeries, in the third week of August, the young largely outnumbered the mothers present at any one time, and, in so far as could be ascertained by observation, the females were disporting themselves in the sea off the fronts of the rookeries.

307. It is very generally assumed that the female, on thus beginning to leave the rookery-ground, at once resumes her habit of engaging in the active quest for food, and though this would appear to be only natural, particularly in view of the extra drain produced by the demands of the young, it must be remembered that, with scarcely any exception, the stomachs of even the bachelor seals killed upon the islands are found

* "Prodromus of the Zoology of Victoria," by Sir F. McCoy, F. R. S., Decade VIII, p. 9.

† Senate, Ex. Doc. No. 32, 41st Congress, 2nd Session, p. 5.

void of food, and that all seals resorting to the islands seem, in a great degree, to share in a common abstinence. While, therefore, it may be considered certain that after a certain period, the females begin to seek such food as can be obtained, the absence of excrementitious matter on the rookery grounds, elsewhere referred to, shows that this cannot occur till towards the close of the breeding season. It may, further, be stated, that there is a very general belief among the natives, both on the Pribyloff and Commander Islands, to the effect that the females do not leave the land to feed while engaged in suckling their young, and that neither of the two females killed in our presence for natural history purposes on Behring Island, on the 5th September, had any trace of food in the stomach, though killed within a few yards of the rookery from which they had just been driven. Also bearing on the same point is the statement made in a memorandum received from Her Majesty's Minister at Tôkiô, based on information obtained from a gentleman fully conversant with the habits and haunts of the fur-seal of the western side of the North Pacific, as follows: "It is sometimes stated that the
55 breeding cows are in the habit of leaving the rookeries to fish for the support of their young, but the experienced authority on whose remarks these notes are founded is not of this opinion. He has never found food inside the female fur-seal taken on the breeding grounds." (See further under Food paragraph 224, *et seq.*)

308. It appears to us to be quite probable, however, that toward the close of the season of suckling, the female seals may actually begin to spend a considerable portion of their time at sea in search of food. It is unlikely that this occurs to any notable extent till after the middle of September, before which the season of pelagic sealing in Behring Sea practically closes. It is not as if the mere presence of seals in any particular part of Behring Sea during the period in question could be taken as representing that of females from the breeding rookeries, for, as already stated, other classes of seals remain thus at large during the greater part, or even the whole, of the breeding season, and it is generally very difficult even for the most experienced eye under favourable circumstances to distinguish at sea between such unattached seals and breeding females. Several of the statements as to the feeding resorts of breeding females from the islands have undoubtedly been founded on the mere presence of seals of some kind at sea. In fact, most of the previously published statements on this point have been based either exclusively on information gained on the breeding islands, and, therefore, not to the point, or on such information, loosely combined with notes on the position of seals casually observed at sea. It is unfortunate that the prohibition of pelagic sealing in Behring Sea in 1891 rendered it impossible in this particular year to gather much actual experience in this matter, such as might have been obtained by examining the condition and sex of seals killed at various known distances from the islands.

The statements collected from other sources are often singularly divergent; but, notwithstanding the evident lack of information on this particular point, a remarkable agreement is found among those interested in decrying pelagic sealing, to the effect that the pelagic sealers do, and must, kill a large number of female breeding seals. In order, however, to show the present state of this question, and the actual basis of many and serious complaints against sea sealing, a few quotations from various authorities on seal life may first be given, and after that some notes on the further evidence obtained by ourselves.

309. Bryant, after describing the relaxation in watchfulness of the male after impregnation has been accomplished, says of the female: "From that time she lies either sleeping near her young, or spends her time either *floating or playing in the water near the shore*, returning occasionally to suckle her pup."*

Elliott writes in a similar strain of the same period. The females, he says, "*lie idly out in the rollers*, ever and anon turning over and over, scratching their backs and sides with their hind flippers."† Elsewhere he states that the mother, he thinks, nurses her pup every two or three days, but adds, "In this I am very likely mistaken."‡ Again, he speaks of a mother coming up from the sea, "where she has been to wash and *perhaps* to feed for the last day or two."§ In another reference, he says: "Soon after the birth of their young they leave it on the ground and go to the sea for food, returning perhaps to-morrow, perhaps later, even not for several days in fact, to again suckle and nourish it, having in the meantime *sped far off* to distant feeding banks," &c.‖

310. In the Report on the Fur-seal Fisheries of Alaska (1889),¶ Mr. W. B. Taylor states that the cows go out every day for food to a distance of 10 or 15 miles, or even further.

Mr. T. F. Ryan states that the "main feeding grounds of the seal during the summer stay upon the islands, and to which the cows are continually going and coming, are to be found 40 to 70 miles south of St. George Island."

Mr. G. R. Tingle, in the same Report, says that the seals probably go 20 miles out in some cases in search of food.

311. Such are the more definite references of a published kind which we have been able to find on this important point in seal life, and they are sufficient to show that very little has heretofore been known on the subject, though much has been taken for granted.

312. The following is a summary of the evidence personally obtained in 1891 from those supposed to be most capable of giving an opinion on the subject:

Mr. G. R. Tingle stated that he believed seals from St. George went to feed, for the most part, about 30 to 40 miles to the southward or south-eastward of that island. From St. Paul he was not aware that they went in any particular direction.

56 Mr. J. C. Redpath did not know of any special place or places to which the seals go to food, but believed that the females go from 10 to 15 miles from the islands for that purpose.

Mr. D. Webster thinks that seals go from St. George Island, when feeding in the autumn, about 60 miles southward; he believes that there is a favourite feeding ground in this vicinity, because he has seen numerous seals there when on his way from the islands to Ounalaska.

Mr. Fowler stated that he believed there was a favourite feeding ground of the seals about 30 miles off north east point of St. Paul Island. This was not from personal knowledge, but depended on statements that seals had been seen in abundance there.

Natives of St. Paul informed us that the females from the rookeries went only 3 or 4 miles to sea to feed, always returning to their young

* "Monograph of North American Pinnipeds," p. 386.
† Ibid., p. 361.
‡ United States Census Report, p. 38.
§ Ibid., p. 39.
‖ Ibid., p. 35.
¶ House of Representatives, Report No. 3883, 50th Congress, 2nd Session. The *italics* in the above-cited passages are our own.

on shore the same day. When questioned as to the classes of seals seen further out, as, for instance, midway between St. Paul and St. George Islands, they stated that all kinds of seals might be found there, but added again that the females usually do not go far from the rookeries.

Mr. N. Grebnitsky, Superintendent of the Commander Islands, stated, as the result of his own personal observation and long experience, that the females went out to sea while suckling the young, but not further than half-a-mile or a mile from the shore. Most of the natives, he added, thought that the females did not feed during this period, but in this he believed them to be mistaken.

M. Tillman, the Agent of the Russian Government, in charge of Copper Island, where he has been for two years, thinks that the females go as much as 2 to 4 miles off shore to feed, but return to the rookeries every night.

M. Kluge, who has been for twenty-one years in the service of the Alaska Commercial Company on several different islands, agreed in this point with M. Tillman, and added that he knows from close personal observation, which he was able to make on Robben Island, that the females return every night, as stated.

Snegiloff, the native foreman on Behring Island, thinks, on the contrary, that the females may leave their young for several days, and may go as far as 10 miles from land to feed.

313. So far as the facts actually observed in 1891 go, it is apparent that there is always a considerable number of seals swimming, playing, or sleeping at sea opposite each of the rookery grounds, and that these in August consist largely of females, while in September great numbers of pups are to be found in addition. When extensive kelp beds exist off the rookeries, the main body of seals is generally seen inside the kelp, and at a distance of half-a-mile or so from shore comparatively few seals are seen; while at two or three miles seaward from the rookery there is no notable abundance of seals, and if sailing round the breeding islands in a fog, at a distance of four miles from the shore, it would be difficult for the closest observer (apart from other indications) to decide when he had passed abreast of a rookery.

314. It is, however, certain, from statements obtained, that females with milk are occasionally killed at sea by the pelagic sealers, and though it is possible that these are mothers which have deserted the islands in consequence of having been driven up to the killing grounds with the holluschickie, or because of some other cause of disturbance, such as the death of their young, it is highly probable that in the later summer and autumn the distance to which the females go from the breeding places becomes gradually increased. It is, nevertheless, scarcely credible that, under any circumstances, the females engaged in feeding their young can navigate to great distances from the islands on erratic courses, and subsequently return punctually and without fail to their rookeries; and any assumption made on this basis must be regarded as requiring proof of a character very different to that so far advanced by those holding such a belief.

315. It may be added here, as the result of personal observations as well as of those already published, that the seals tend to leave the rookeries and hauling grounds for the sea in large numbers when incommoded on shore by too great heat or by heavy rain, and, further, that after stormy weather, characterized by heavy wind and surf, there is generally an increased and marked exodus from the shore.

316. Singularly enough, the greatest diversity of opinion was found to prevail, even among those who ought to be best informed on this subject, as to whether the seals leave the land for feeding or other purposes most commonly by day or by night. This difference of opinion obtained not only among the Whites, but also among the natives, and it is found both in the Pribyloff and Commander Islands. Some maintain that the female seal returns to shore every night, others that most of them leave the shore at this time, and, taking all opinions into consideration, the only conclusion that can be arrived at is that the seals go and come at all times. Certainly, there is no particular period of rest upon
57 the rookeries themselves during the breeding season, for they are as noisy during the night as by day. Judging from observations made while at anchor near the rookery grounds of St. Paul and St. George, it would appear that the seals are more abundant in the water during the night, when they often surrounded the vessel in great numbers. On these occasions they seldom seemed to be travelling in any particular direction, but played about, coming up first on one side of the vessel and then on the other, and appeared to be more wary and easily frightened than during the day.

(J.)—*Habits when Suckling.*

317. When the female seals begin to absent themselves at frequent intervals from the rookery grounds and from their young, as already described, the young begin to travel about in all directions from the actual spot of their birth. Most of them collect in large groups, or "pods," sometimes near the edge of the sea and sometimes at a distance from it, while solitary pups are to be found roving or sleeping everywhere. It has been stated, and the statement has been received without question, that throughout the entire season, and even under the circumstances above described, the female is invariably able to single out, and will suckle only, her own young. Analogy with most other animals appears to favour this view, and probably accounts for the fact, that it has been accepted without proof, which, indeed, as neither the individual mothers nor the individual young can be continuously recognized on the rookeries, would be very hard to obtain.

318. The analogy just referred to may or may not hold in the case of the fur-seal, which is in many respects very peculiar in its habits. The young of most other animals, if left at any time by the dam, remains where left, and it is very seldom necessary for the mother to select her own progeny from a vast crowd of others. Again, even assuming that she be capable of thus singling out her own young one, if, as is commonly supposed, she remains for the greater part of the day, or, according to some authorities, for several days, in the sea, she must very often wholly fail to find her young, which may have in the meantime wandered off to an entirely different part of the rookery. Under these circumstances, the female would continue to be unquiet till she got rid of her milk, and must indeed be possessed of great fortitude if she refuses to part with it to any of the thousands of other young seals about her. The difficulty of finding the young must, of course, be vastly increased in cases in which the mother has given birth to two pups, one of which may have wandered in one direction, another elsewhere.

319. The idea that the female will suckle the pup she has brought forth only, appears to have been started by the natives, but, so far as can be ascertained, is first advanced by Bryant, who writes: "On landing, the mother calls out to her young with a plaintive bleat like that

of a sheep calling to her lamb. As she approaches the mass (of young) several of the young ones answer and start to meet her, responding to her call as a young lamb answers its parent. As she meets them she looks at them and passes hurriedly on till she meets her own, which she at once recognizes."*

320. Elliott has adopted this theory, and amplifies it, writing:—"The mother, without first entering into the crowd of thousands, recognizes the voice of her offspring, and then advances, striking out right and left, toward the position from which it replies." Elsewhere in this connection he speaks of the mother crying out for its young and recognizing the individual reply, "though ten thousand around, all together, should blaat [*sic*] at once." On a later page, he again says: "I have witnessed so many examples of the females turning pups away to suckle only some particular other one, that I feel sure I am entirely right in saying that the seal-mothers know their own young, and that they will not permit any others to nurse save their own. I believe that this recognition of them is due chiefly to the mother's scent and hearing."†

321. It is not intended to criticize these statements, which, in so far as they relate to observed facts, can be certified to; but it is necessary to point out that they constitute the entire body of proof in the matter in question, and that the influence drawn from them must be characterized as "not proven." The young themselves certainly do not know their own mothers, and the statement that the mother knows her individual young seems to be placed in doubt, and is certainly not to be assumed merely from analogy with other animals which show a degree of affection for their young, because of the observation which may be made any day on the rookeries, that the female fur-seal is entirely careless respecting her offspring.

58 322. As Mr. Elliott is chiefly responsible for the theory here specially referred to, it is only fair, however, that he should be heard also on the last-mentioned point. On this he says: "The apathy with which the young are treated by the old upon the breeding grounds, especially by the mothers, was very strange to me, and I was constantly surprised at it. I have never seen a seal-mother caress or fondle her offspring; and should it stray to a short distance from the harem I could step to and pick it up, and even kill it before the mother's eye, without causing her the slightest concern, so far as all outward signs and manifestations would indicate."‡

323. The whole theory in fact, when examined, rests on the circumstance that when a female seal is seen to come ashore, she will not take the first young one she meets, but perhaps by sound, perhaps by scent, selects one which she allows to feed. It appears, therefore, to be at least quite possible, that in thus making her selection she may merely seek a young one which does not carry the smell of fresh milk about it. The gregarious habits of the fur-seal, with the difficulties inherent in the matter of the reunion of mother and young under the peculiar circumstances obtaining on the rookeries, appear to show that it would be advantageous to seal life as a whole if any mother would suckle any hungry pup.

324. It may be added, that in a report received from Mr. C. H. Jackson, Government Agent in charge of the Seal and Guano Islands of Cape Colony, he states, respecting the fur-seals inhabiting these islands (after speaking of the killing of females), that "but for a happy pro-

*As quoted by Allen, "Monograph of North American Pinnipeds," p. 387.
†United States Census Report, pp. 39 and 162.
‡United States Census Report, p. 38.

vision of nature, whereby a female seal will suckle any young one, the destruction of the new-born seals would be complete;" and, again, says: "The cow will suckle any of the young seals, whether her own or not, and this period of nursing continues more or less for about six months."

The same statement is made with respect to the fur-seal of the Australian coast.*

325. The analogy of other animals has so frequently been cited in this connection that it may be in point to quote from an interesting memorandum furnished by Sir Samuel Wilson, M. P., the eminent Australian sheep-breeder. He states that it is common and easy to make ewes suckle other ewes' lambs, either by putting the skin of the dead lamb over the new lamb, or by folding together, in hurdles, the strange lamb and the ewe. When the herd is valuable, all ewes are mothered to lambs which have none of their own, and the same is done in the case of twins. Ewes recognize their own lambs by smell. Sometimes a lamb, not her own, may come up on the other side while she is suckling her own lamb, and may, unnoticed by her, suck her for a time. There are, moreover, lambs which go about in this way, and manage to live by what they can steal. This Australian experience is fully borne out by general experience.

(K.)—*Natural Causes of Destruction.*

326. In connection with the general aspects of seal life, and the effects upon it of commercial killing, it is necessary to remember that it is largely ruled by certain natural events, or phenomena, and that, as in the case of nearly all animals in a state of nature, but a limited proportion of the whole number of young produced ever attain either to a "killable" age, or to one of maturity. Thus, in killing a large number of seals annually, a draft is made upon a margin of seal life which has escaped all the other necessarily environing dangers, and which very often must be regarded as a natural reserve in process of being slowly built up in the intervals between irregular and exceptional inroads which may at any time occur, and over which man exercises no possible control.

327. Thus, on the Pribyloff Islands, one particular instance has been recorded, when, in consequence of the long persistence of field-ice about the islands, the seals were very greatly depleted. This occurred in 1836, when, according to native count, the number of adult seals on St. Paul Island was reduced to about 4,000, and the greater part of the small number of seals killed in that year consisted of pups. Other, though less disastrous instances, of the same kind have occurred since, and a study of available information respecting the amount and position of the ice in Behring Sea in various years shows that such adverse conditions may recur in any year, though probably seldom with the same intensity as in 1836.

328. Again, large numbers of pups are often killed before leaving the islands by heavy storms occurring before they are able to swim strongly, and in consequence of which they are dashed against the rocks or upon the beach. Unfortunately, nothing like a complete record has been kept of such occurrences, but Bryant, Maynard, and Elliott, in their published Reports, all refer, at greater or less
59 length, to them. One notable case of this particular kind occurred in October 1876,† and Mr. D. Webster informed us that

* "Prodromus of the Zoology of Victoria," by Sir F. McCoy, F. R. S., Decade VIII, p. 10.

† "Monograph of North American Pinnipeds," p. 397.

once "in the seventies" as early as July, he had seen the beaches at North-East Point "strung with dead pups," after a heavy storm. More or fewer pups are, in fact, apparently killed in this way every year.

329. On Robben Island, very considerable numbers of young pups are killed by burgomaster gulls (*Larus glaucus*), which pick out their eyes. This is so well known that a reward of 5 copecks (1½*d.*) is given for each of these gulls killed. This gull is rather scarce on the Commander Islands, but the natives there have noticed cases of pups being killed in the same way. They are common about the Pribyloff Islands, and are frequently seen on the rookeries, but no one there appears to have observed them attacking young seals.

330. The most generally recognized danger to the pups, of a constant kind, while they are still upon the islands, is that resulting from the adult bulls or seacatchie on the rookeries. These, when fighting, or otherwise excited or disturbed, pay not the slightest attention to the young in their vicinity, and overrun them without compunction in such a manner as frequently to cause their death. Elliott doubts whether more than 1 per cent. of the whole number of young in each year is destroyed in this way, but everyone who has paid the slightest attention to the economy of the rookeries is familiar with the frequent occurrence of such deaths.

331. In his Report upon the condition of affairs in Alaska (1875), the same writer speaks of the presence on the rookeries of "decaying carcasses of old seals and the many pups which have been killed accidentally by the old bulls while fighting with and charging back and forth against one another."* In the Census Report substantially the same passage is, however, paraphrased by the writer, with the substitution of "few pups" for "many pups."†

Professor Allan may also be cited in this connection, though he specially refers to alarms of a kind which can scarcely be strictly classed under natural causes of destruction. He writes: "Constant care is also necessary lest thoughtless persons incautiously approach the breeding grounds, as the stampede of the seals which would result therefrom always destroys many of the young."‡

332. When a sudden alarm causes a panic among the seals on a rookery, and they make in consequence a rush in closely-huddled masses for the water, very considerable numbers of pups may at any time be killed. It is very easy in this way to "stampede" even the breeding seals, and the necessity of preventing such stampedes is one of the main reasons for preserving the vicinity of the rookeries from all intrusion and disturbance. As already noted, the seals are alarmed particularly by smell, and during the summer of 1891 a panic was caused on the Reef Rookery of St. Paul Island by the drifting over it of the smoke from a steamer which was entering the anchorage there.

333. Nordenskiöld refers particularly to this matter in his account of the fur-seals of Behring Island, writing:

> The young ones are often smothered by the old when the latter, frightened in some way, rush out into the sea. After such an alarm hundreds of dead pups are found on the shore. §

334. Killer whales (*Orca rectipinna*) are among the more active enemies of the fur-seal. Mr. D. Webster, who, because of his long experience on

*Page 149. See also "Monograph of North American Pinnipeds," p. 370.
†United States Census Report, p. 42.
‡"Bull. Mus. Comp. Zool.," vol. ii., Part I, p. 97.
§"Voyage of the 'Vega,'" translation by Leslie, vol. ii, p. 290.

the Pribyloff Islands, has already been frequently quoted, states that these whales usually come to the islands from the north early in September, and stay about them as long as the seals do.* They kill many seals, particularly pups, and wantonly kill, apparently in sport, many more than they actually devour. Captain Lavender, in his Report for 1890, mentions the occurrence of large schools of killer whales in pursuit of young seals about the islands on the 30th October in that year,† and Lieutenant Maynard mentions a case in which a single killer whale was found to have fourteen young seals in its stomach.‡ The Aleuts at Ounalaska further stated that they have often seen killer whales pursuing and catching fur-seals, not alone the young, but also the adults.

335. In the vicinity of the Commander Islands killer whales also occur, but they do not appear to be so numerous as about the Pribyloff Islands, and their ravages have not been complained of in the same way.

60 336. As the killer whale frequents not only the summer haunts of the fur-seal, but its whole migration-range and winter habitat, it is practically certain that the seals are exposed to their attacks at all times, except when actually ashore on the breeding islands. It is, moreover, supposed, and doubtless correctly so, that the larger sharks to be found in the same waters prey upon the young seals to a considerable extent.

337. In consequence of these and perhaps other enemies, and of various accidents, and irrespective of possible epidemic disease, the number of the young seals born is greatly reduced before they return as yearlings in the following year; and it is still further continuously reduced, though in a diminishing proportion, in subsequent years. On this subject Bryant writes as follows:

> During the time the young seals are absent from the islands, fully 60 per cent. of their number are destroyed by their enemies before they arrive at the age of one year, and during the second year about 15 per cent. more are lost. Later they appear to be better able to protect themselves, but before they arrive at maturity, at least 10 per cent. more are destroyed. So that if left entirely to themselves, only 10 or 15 per cent. of the annual product would mature or reach the age of seven years.§

On the same subject Elliott writes, speaking particularly of the males:

> By these agencies, during their absence from the islands until their reappearance in the following year and in July, they are so perceptibly diminished in number, that I do not think, fairly considered, more than one-half of the legion which left the ground of their birth last October came up the next July to these favourite landing-places; that is, only 250,000 of them return out of the 500,000 born last year. The same statement, in every respect, applies to the going and coming of the 500,000 female pups, which are identical in size, shape, and behaviour.‖

338. Neither of these statements claim any great precision, and it would be impracticable to make them precise. Bryant's may be taken, however, as showing a more careful consideration of the facts, and according to his estimates, in the case of 100,000 pups, but 40,000 would return in the second year and 34,000 in the third year, while about 30,000 would reach maturity.

339. It can scarcely be doubted that the fur-seal of the North Pacific is also subject to diseases of various kinds, the prevalence or otherwise of which have their effects on the numbers at each particular period. Inquiries made on the subject have, however, not brought to light any

* See also Bryant in "Monograph of North American Pinnipeds," p. 407.
† Senate, Ex. Doc. No. 49, 51st Congress, 2nd Session, p. .
‡ House of Representatives, Ex. Doc. No. 43, 44th Congress, 1st Session, p. 6.
§ "Monograph of North American Pinnipeds," p. 407; see also House of Representatives, Ex. Doc. No. 83, 44th Congress, 1st Session, p. 65.
‖ United States Census Report, p. 63.

notable mortality which has been attributed to disease, nor do previously published reports include any mention of such mortality. It may thus at least be inferred, that no notably fatal disease has attacked these animals while upon their breeding islands within historic times, but it is not safe to affirm that disease has been wanting, or that epidemic diseases may not, at any given time, appear, and require to be allowed for in any regulations made respecting the killing of seals.

340. In the Report of Mr. C. H. Jackson on the fur-seal islands of Cape Colony, already referred to, he writes: "Upon several islands, especially in the Ishabar group, are to be found the remains of vast numbers of 'seal,' probably the effects of an epidemic disease at some distant period."

341. On the same subject and referring to the same region, Mr. H. A. Clark writes as follows, quoting "Morell's Voyages": "In 1828 Captain Morell, in the schooner 'Antarctic,' visited the west coast of Africa on a fur-seal voyage. At Possession Island, in latitude 26° 51′ south, he found evidence of a pestilence among the fur-seals. The whole island, which is about 3 miles long, he states, was covered with the carcasses of fur-seals, with their skins still on them. They appeared to have been dead about five years, and it was evident that they had all met their fate about the same period. I should judge, from the immense multitude of bones and carcasses, that not less than half-a million had perished here at once, and that they had fallen victims to some mysterious disease or plague." About 17 miles north of Possession Island are two small islands not over a mile in length, where Captain Morell found still further evidence of a plague among the fur-seals. "These two islands," he says, "have once been the resort of immense numbers of fur-seals, which were doubtless destroyed by the same plague which made such a devastation among them on Possession Island, as their remains exhibited the same appearance in both cases."*

342. Elliott, after stating that he has observed no disease among the seals of the Pribyloff Islands, quotes a recorded instance of a plague affecting the hair seals of the north of Scotland, Orkney and
61 Shetland Islands, and adds: "It is not reasonable to suppose that the Pribyloff rookeries have never suffered from distempers in the past, or are not to in the future, simply because no occasion seems to have arisen during the comparatively brief period of their human domination." †

343. The fur-seals upon the Pribyloff Islands are, however, afflicted by at least one known trouble, that of intestinal worms, and in the stomachs of nearly every seal killed a certain number, and often a very considerable number, of such worms are found. This cannot of course be considered as constituting in itself a very serious affection, but if under any particular train of circumstances it should be considerably increased, it alone might become a danger to the continued well-being of the seals.

(L.)—*Mortality of young Seals in 1891.*

344. In the season of 1891, considerable numbers of dead pups were found in certain places upon the rookery grounds or in their vicinity, and various hypotheses were advanced to account for this unusual mortality. As some of these have special bearings on the general question of seal preservation, it may be well to devote a few words to this particular subject.

* "Fishery Industries of the United States," vol. ii, p. 416.
† United States Census Report, p. 62.

345. In order to exhibit the circumstances surrounding this fact and to arrive at a probable explanation of its true meaning, it will be necessary in the first instance to give in summarized form the observations and notes bearing upon it made on the ground by ourselves.

346. When visiting Tolstoi Rookery, St. Paul Island, on the 29th July, we observed and called attention to several hundred dead pups which lay scattered about in a limited area, on a smooth slope near the northern or inland end of the rookery ground, and at some little distance from the shore. The bodies were partly decomposed, and appeared to have lain where found for a week or more, which would place the actual date of the death of the pups, say, between the 15th and 20th July. Neither the Government Agent who was with us, nor the natives forming our boat's crew at the time, would at first believe that the objects seen on the rookery were dead pups, affirming that they were stones; but when it became clearly apparent that this was not the case, they could suggest as causes of death only over-running by bulls or surf along the shore, neither one of which appeared to us at the time to be satisfactory. Mr. D. Webster, interrogated on the subject some days later on St. George Island, offered merely the same suggestions, but a few days still later, both Whites and natives on the islands were found to have developed quite other opinions, and to be ready to attribute the deaths to the operations of pelagic sealers killing mothers while off at sea, and leading to the death of pups from starvation consequent on such killing.

347. Believing the matter to be one of considerable importance, however it might be explained, particular attention was paid to it on subsequent visits to rookeries. On the 31st July and the 1st August the rookeries of St. George were inspected, but no similar appearances were found, nor was anything of the same kind again seen till the 4th August, on Polavina rookery, St. Paul Island, where, near the southern extremity of the rookery, several hundred dead pups were again found by us, here also covering an area of limited size, which we were able to examine carefully without disturbing the breeding seals. It was estimated that the pups here found had died between ten days and two weeks before, which would place the actual date of death at about the same time with that of those first referred to.

348. On the following day the extensive rookeries of North-East Point were visited and examined, but very few dead pups were anywhere seen. Mr. Fowler, in charge of these rookeries for the Company, was specially questioned on this point, and fully confirmed the negative observations made by ourselves at the time. It may here be mentioned that the vicinity of North-East Point had been the principal and only notable locality from which, up to this date, sealing vessels had been sighted in the offing, or had been reported as shooting seals within hearing of the shore.

349. On the 19th August, after a cruize to the northward of about a fortnight's duration, we returned to St. Paul, and on the same day revisited Tolstoi Rookery. On this occasion the dead pups previously noted were still to be seen, but the bodies were flattened out and more or less covered with sand, by the continuous movement of the living seals. There were, however, on and near the same place, and particularly near the angle between Tolstoi Rookery and the sands of English Bay, many more dead pups, larger in size than those first noted, and scarcely distinguishable in this respect from the living pups which were then "podded out" in great numbers in the immediate neighbourhood. Messrs. Fowler and Murray, who accompanied us

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on this occasion, admitted the mortality to be local, and the first-named gentleman stated that in his long experience he had never seen anything of the kind before, and suggested that the mothers from this special locality might have gone to some particular "feeding bank," and have there been killed together by sea sealers. On the same day we visited the Reef Rookery again, and a search was made there for dead pups, which resulted in the discovery of some of approximately the same size with those last mentioned, but probably not more than an eighth, and certainly not more than one-fourth, in number as compared with the inner end of the Tolstoi Rookery ground, and proportionately in both cases to the number of living pups.

350. While making a third inspection of the St. Paul rookeries in September, on the 15th of that month, the Reef and North-East Point rookeries were again specially examined. The rookery ground of the south-eastern side of the Reef Point was carefully inspected area by area, with field glasses, from the various rocky points which overlook it, and from which the whole field is visible in detail save certain narrow stony slopes close to the sea-edge, where dead pups might have been hidden from view among the boulders. Subsequently, the north-eastern sloping ground, named Gorboch on the plans, being at that date merely occupied by scattered groups of seals, was walked over. The result of the inspection was to show that there were on the south-east side a few dozen dead pups at the most in sight, while on the opposite side perhaps a hundred in all were found in the area gone over, being, probably, the same with those seen here the previous month, and in number or contiguity not in any way comparable with those seen at the inner end of Tolstoi.

351. On the same day a final visit was made to the North-East Point rookeries, then in charge of three natives only. Two of these men went over the ground with us, and were questioned on various subjects, including that of dead pups, through our Aleut interpreter. They would not admit that they had seen any great number of dead pups on the North-East Part this season, and did not seem to be in any way impressed with the idea that there had been any unusual mortality there. The ground to the north of Hutchinson Hill was, however, carefully examined by us from the slopes of the hill, and a few dead pups were made out there. Again, at a place to the north of Sea-lion Neck of the plans, and beyond the sand beach upon which holluschickie generally haul out, a slow advance was made among a large herd of females and pups, though part of these were necessarily driven off the ground in so doing. An occupied area of rookery was thus walked over, and the dead pups which appeared at this spot to be unusually abundant were counted with approximate accuracy. A very few were found scattered over the general surface, but on approaching the shore edge, an area of about 20,000 square feet was noted, in which about 100 dead pups were assembled. Some of these lay within reach of the surf at high tide. Most appeared to have been dead for at least ten days, and several were broken up and mangled by the movement of the living seals on and about them. This particular locality showed a greater number of dead pups to area than any other seen at this time either on the North-East or Reef rookeries, but in number in no respect comparable to that previously noted at Tolstoi, or even to that on the south part of Polavina.

352. We were informed on this our last visit to the Pribyloff Islands, that subsequent to our discovery of and comments upon the dead pups at the two last-mentioned places, the attention of Mr. J. Stanley-Brown

(who was engaged during the summer in making a special examination of the rookeries for the United States Government) was called to the circumstance, and that he undertook some further examination of it, of which the result will, no doubt, eventually be rendered available. Dr. Acland, who had just been installed as Medical Officer on St. Paul, also told us that he had, within a few days, examined the bodies of six of the dead pups from Tolstoi, and that though rather too much decomposed for correct autopsy, he had been unable to find any signs of disease, but that all those examined were very thin and without food in the stomachs.

353. It may be noted here that the carcasses thus examined must have been those of pups which had died in the month of September, or when no sealing schooners remained in Behring Sea.

354. The body of a pup found by us on the North East Rookery on the 5th August, which was still undecomposed, was preserved in alcohol, and has since been submitted to Dr. A. Günther, F. R. S., of the British Museum, who kindly offered to make an examination of it. This is quoted at length in Appendix (D). The stomach was found to contain no food. The body was well nourished, with a fair amount of fat in the subcutaneous tissue, but no fat about the abdominal organs. The lungs and windpipe were found in an inflammatory condition. Respecting the actual cause of death, Dr. Günther says: "Both the absence of food as well as the condition of the respiratory organs are sufficient to account for the death of the animal; but which of the two was the primary cause, preceding the other it is impossible to say."

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355. It would be inappropriate here to enter into any lengthened discussion of the bearings of the above facts on the methods of sealing at sea; but as, after the tentative adoption of various hypotheses, the mortality of the young seals was with a remarkable unanimity attributed to pelagic sealing by the gentlemen in any way connected with the breeding islands, and as it has since been widely and consistently advertised in the press as a further and striking proof of the destructiveness of pelagic sealing, it may be permissible to allude to a few cogent reasons, because of which the subject seems at least to require consideration of a much more careful and searching kind:

(1.) The death of so many young seals on the islands in 1891 was wholly exceptional and unprecedented, and it occurred in the very season during which, in accordance with the *modus vivendi*, every effort was being made to drive all pelagic sealers from Behring Sea. Those familiar with the islands were evidently puzzled and surprised when their attention was first drawn to it, and were for some time in doubt as to what cause it might be attributed.

(2.) The explanation at length very unanimously concurred in by them, viz., that the young had died because their mothers had been killed at sea, rests wholly upon the assumption that each female will suckle only its own young one, an assumption which appears to be at least very doubtful, and which has already been discussed.

(3.) The mortality was at first entirely local, and though later a certain number of dead pups were found on various rookeries examined, nothing of a character comparable with that on Tolstoi rookery was discovered.

(4.) The mortality first observed on Tolstoi and Polavina was at too early a date to enable it to be reasonably explained by the killing of mothers at sea. It occurred, as already explained, about the 15th or 20th July, at a time at which, according to the generally accepted dates, as well as our own observations in 1891, the females had not begun to

leave the rookeries in large numbers, or, when leaving them, to do no more than swim or play about close to the shore. It has already been stated that Bryant gives the 25th July as the opening of the period in which the females begin to leave the rookeries. Maynard states that the bulls, cows, and pups remain within the rookery limits to the same date, while Elliott places this change in the rookeries between the end of July and the 5th and 8th August. It is, moreover, acknowledged by the best authorities, that the dates in seal life upon the islands have become later rather than earlier in recent years, as compared with those in which the dates above cited were ascertained. In the case of the death of pups after the middle of August, it might be an admissible hypothesis that the mothers had been killed at sea, and that subsequently to such killing the young had had time to starve to death, but not at dates earlier than this. In the present case, the mortality began long before that date, and it seems probable that the deaths which occurred later must be explained by the same cause, whatever it may have been, extending from the original localities and becoming more general.

356. The causes to which the mortality noted may be attributed with greatest probability are the following, but the evidence at present at disposal scarcely admits of a final attribution to one or other of them. If, however, the examination made by Dr. Acland of several of the carcasses be considered as indicative of the state of the whole, one of the two first is likely to afford the correct explanation:

(*a.*) It is well known that in consequence of the decreased number of "killables" found on the hauling-grounds in late years, it has been found necessary to collect these close to and even on the edges of the breeding rookeries, and that it has thus been impossible to avoid the collection and driving to the killing grounds with the "killables" of all sorts of seals not required, including seacatchie and females. It is also known that the driving and killing in the early part of the season of 1891 was pushed with unwonted energy, taking into consideration the reduced number of seals, and it appears to be quite possible that the females thus driven from their young, though afterwards turned away from the killing grounds in an exhausted and thoroughly terrified state, never afterwards found their way back to their original breeding places, but either went off to sea or landed elsewhere. The places where the greatest number of dead pups were first seen on Tolstoi and Polavina were just those from the immediate vicinity of which drives were most frequently made.

(*b.*) The appearances, indicating a local beginning and greatest intensity of mortality, with its subsequent extension to greater areas, might reasonably be explained by the origination and transmission of some disease of an epidemic character.

64 (*c.*) The circumstances where the mortality was observed to be greatest appeared to be such as to be explicable by a panic and stampede with consequent over-running of the young, but, if so, such stampedes must have occurred more than once. They might not improbably have resulted from attempts to collect "drives" too near the breeding rookeries.

(*d.*) It is entirely within the bounds of probability that raiders may have landed on at least Tolstoi and Polavina rookeries without any one upon the islands becoming cognisant of the fact. Females would in such a case be killed in greatest numbers, for these occupy the stations most easily got at from the sea-side, and the killing upon the rookery ground would also unavoidably have resulted in "stampeding" large numbers of seals of all classes.

(M.)—*Methods of enumerating Seals on the Pribyloff Islands and Estimates of Numbers.*

357. The number of seals frequenting the Pribyloff Islands at different dates is of course a fact of fundamental importance, and every attention has thus been given to the methods employed in making estimates of number and to the results arrived at. Unfortunately for purposes of comparison, these have been made for the past twenty years at irregular intervals, on entirely different methods, and by quite different persons, excepting in the one case of Mr. Elliott, who made elaborate observations on the spot both in 1872–74, and in 1890, the latter being of special value for purposes of comparison with the conditions in 1891.

358. The first actual estimate of the total numbers of seals resorting to the Pribyloff Islands appears to have been that made by Bryant in 1869. Bryant states that he discovered that there were no open places on the rookeries, that they began to fill at the water-line, and extended no further back than the breeding seals could occupy in a compact body. He then estimated the number to a square rod, and, presumably, by finding the number of square rods contained in the rookery grounds, found the total number of breeding seals to be 1,130,000. He next proceeded to estimate the non-breeding seals and the young of the year, and states his belief that there were on the island [*sic*] not less than 3,230,000.* If intended for both islands, as by the context it appears to be, this estimate is probably a reasonably fair one, made at least to the best of the writer's ability, though, as he does not state the number assumed to the square rod, we are without any exact means of checking it.

359. In his report, based on observations in 1872–74, Mr. Elliott claims the credit for the "discovery" that the seals collected on the rookeries in a uniform number to the square rod, and, with even greater candour than the last writer, puts us in possession of his unit of computation. This is very simple, for he merely allows two square feet to each breeding seal on the rookery ground, divides the whole number of square feet considered as rookery ground by two, and calls this the number of breeding seals. His discussion of the subject is somewhat lengthy, but he sums up his conclusions as follows: "Taking all these points into consideration, . . . I quite safely calculate upon an average of two square feet to every animal, big and little, on the breeding grounds, as the initial point upon which to base an intelligent computation of the entire number of seals before us."† Working upon this basis, he makes the number of breeding seals on the islands, in 1872–74, 3,193,420, and, adding an estimate for the non-breeding seals, raises the grand total to 4,700,000.‡

360. Lieutenant Maynard, in his Report written in 1874, states that the seals frequenting the Pribyloff Islands "have been variously estimated at from 1,000,000 to 15,000,000." He thinks Mr. Elliott's method of estimation to be the most accurate, but, by adding a larger number of non-breeding seals, raises the grand total, as relating to the year 1872, to about 6,000,000.§

361. Fourteen years after Mr. Elliott's estimate, Mr. G. R. Tingle, in 1887, expresses the belief that the area of rookery grounds had increased, and, employing Elliott's method of computation, arrived at the figures

* "Monograph of North American Pinnipeds," p. 389.
† United States Census Report, p. 50.
‡ Ibid., pp. 61 and 62.
§ House of Representatives, Ex. Doc. No. 43, 44th Congress, 1st Session, p. 5.

6,357,750-for the total number of seals. He explains, however, that the space given to each seal by this hypothesis was too small, and, consequently, reduces his estimate by one-fourth, making it 4,768,300.*

362. It will be observed that Elliott's mode of computing the space occupied by the breeding seals has been made the basis for subsequent calculations, though both Maynard and Tingle took the liberty of essentially changing the results as they would have appeared if this method had been strictly followed. Neither wholly believed in it, but neither saw his way to substituting a more accurate basis, and both, therefore, merely modified its results by guessing at additions or subtractions.

363. Elliott's basis of computation must, however, be taken subject to his own measurements of an adult female, which are as follows: Length, 50 inches; girth, 36 or 37 inches. Such an animal, in a recumbent position, would be contained in a rectangle of as nearly as possible 4, instead of 2, square feet, and as it is not the normal habit of seals to lie overlapped one upon another, or to stand upright on their hind flippers, it is surely clear that his unit of measurement is an erroneous one. This appears to have occurred to the author himself, for, in stating the totals of various rookery areas, he writes, cautiously, "making ground for" so many seals, and it is not till he proceeds to make up his grand totals that this statement is suddenly exchanged (though in the same tables) for one representing actual number of seals.

364. This fact of measurement is not, however, the most palpable source of error in these calculations, for the nature of the ground occupied by the breeding seals in itself renders them wholly inapplicable. A first inspection of the territory covered by any one of the Pribyloff rookeries is sufficient to show this, and the fact becomes more and more obvious as they are examined in detail. The notes already given (§ 256 *et seq.*) on the character of the rookery grounds may indicate the reason of this criticism, but it would be difficult to convey an adequate idea of the rocky and broken character of some of them by any description. Photographs may serve to exhibit better their general nature, and it appears to be reasonably within limits of error to conjecture that, in the aggregate of the Pribyloff Rookery grounds, not more than one-half the whole space included by their outer limits can, under any circumstances, be assumed to be a surface so level as to be "ground for the resting-place of seals."

365. It has been considered necessary to deal with this subject because of its direct bearing upon the question of the fluctuation and general diminution of the seals upon the rookeries, and the evidence that it affords of the now scarcely-questioned fact, that the estimates made in the earlier years of the control of the islands by the United States were absurdly high. It may be added that no single individual of the many questioned by us who had been familiar with the Pribyloff or Commander Islands, or both, for longer or shorter periods, was found to be ready to maintain even the approximate accuracy of the statements of number of seals according to the above-discussed method of enumeration.

366. By way of further substantiating the conclusions arrived at, however, it may be well to quote a few published opinions bearing on it, which occur in the Congressional Inquiry into the Fur-seal Fisheries of Alaska, made in 1888:†

* House of Representatives, Report No. 3883, 50th Congress, 2nd Session, pp. 163 and 177.

† House of Representatives, Report No. 3883, 50th Congress, 2nd Session.

Mr. S. M. Büynitzky, Government Agent on the islands during parts of the years 1870–71–72, says: "I saw an approximate estimate made by Mr. Elliott . . . . I do not think any estimate would be within a million or two. I think he puts them at five millions, but it may be three or seven millions, as they are countless."

Mr. G. Wardman, Government Agent on St. George Island from 1881 to 1885, asked as to the total number of seals on the islands, says: "I never could make it so much as Professor Elliott has done. I made many estimates. I have been to all the rookeries on the islands many times, and compared them with the space occupied by the carcasses on the killing grounds, and I feel pretty confident that the whole number has been over-estimated." He then proceeds to justify his opinion by special references to rookeries on St. George and to measurements.

Mr. T. F. Morgan, who was on the Pribyloff Islands in 1868–69, and again during every killing season from 1874 to 1888, as an employé of the Alaska Commercial Company, says, respecting the number of seals: "I think that Professor Elliott has over-estimated it . . . : he laid down the carcasses of seals and measured around them, and then measured the rookeries. . . . But they do not lie all over the territory which he marked out. . . . The seals did not cover the whole area as thoroughly as he measured it."

Dr. H. H. McIntyre, Superintendent of the Alaska Commercial Company, and on the islands every year, except three, from 1870 to 1888, says: "I think the number has been very largely over-estimated in the reports of naturalists who have observed the habits of the animals on the seal islands. They have made their mistake in supposing that all the ground which shows signs of having been occupied by seals is covered by them simultaneously, when the fact is, that the bachelor seals may be found to-day upon a certain rookery, and another time upon another place. The result is, the same animals in many instances have been counted two or three times. I think the estimates are fully one-third, or perhaps one-half, too high."

367. No further estimate of the total number of seals upon the Pribyloff Islands appears to have been made until that of Mr. Elliott in 1890, in which the grand total arrived at is 959,393 breeding seals, including only 350,000 breeding females, besides a large number of barren females, while the number of male seals over one year old did not exceed 100,000.

368. The citations above given are sufficient to show the character of the estimates of numbers made, and to indicate why it is impossible to follow the changes and fluctuations in numbers of seals resorting to the Pribyloff Islands directly and by these means alone. In his original report of 1874, Lieutenant Maynard very sensibly remarks that the most trustworthy index of the condition of the rookeries is to be found in the aggregate area occupied by them at particular dates in each season, rather than in actual numbers of seals, which can never be anything but mere approximations. His suggestion, that plans should be made and marked with the rookery limits in each year, was unfortunately not carried out, and we are thus thrown back upon indirect methods of instituting comparisons between the past and present condition of seal life upon the islands. We can only hope that for the future steps will be taken accurately to peg out or mark the limits of the existing rookeries as a criterion of changes certain to occur from year to year.

369. The auxiliary methods which were adopted in making comparisons of the past and present condition of the rookeries, included careful personal observation at three different periods in the season of

1891, made in the light of evidence previously published, and with the aid of formal and informal questioning and conversation with all those actually engaged in the work on the islands, as well as with many who had previously worked on the islands, but were at the time in other independent employments.

370. The differing ages at which the males and females respectively reach maturity and enter into the breeding class, together with the varying times at which the sexes are supposed to continue in this class, with other circumstances already detailed as to the habits of the fur-seals, together afford the data for very elaborate calculations as to the rate of increase or decrease of numbers of seals under various conditions, and subject to the killing of certain numbers of seals of specified sexes and ages. Such calculations, from a practical point of view, are, however, more curious than useful: first, because of the uncertainty of many of the data, due to a want of necessarily precise information; and second, from the impossibility of including the consideration of the varying natural causes of loss, which in some years may be so serious as to entirely vitiate any arithmetical result which may be arrived at by such a calculation. An attempt of a very general character has, nevertheless, been made to illustrate the normal increase and possible killing of seals, which may be presented for the purpose of putting the matter in point. In this calculation roughly approximate data only are employed, because it is believed that such data are, under the circumstances, likely to yield results as trustworthy as any assumptions of a refined and definite character.

371. The state of the breeding rookeries of the fur-seal, under normal circumstances, and while the surplus of males is being annually killed off, may, it is believed, be fairly represented by a unit value consisting of—breeding males 10,000, breeding females 100,000. Bryant's estimate (which appears to be the best) of young surviving to reach maturity, under normal circumstances, is 30 per cent. of the entire number born; or with an annual birth-rate corresponding to the above "unit" of 100,000, 30,000 would reach "maturity" each year.*

It may further be assumed that the average age of "maturity" in the two sexes is 4 years, and that the whole number of seals upon the rookeries during four preceding years has remained constant.

372. Under these assumptions, 30,000 4-year-old seals would be added each year; and it may be postulated, though it has not been actually ascertained, that of these 15,000 are males and 15,000 females. Of these it may be supposed that 10 per cent. is required in each case to replace natural losses by death annually of the breeding classes, or, say, 10,000 females and 1,000 males.

373. Under these assumptions, it is evident that a surplus of the yearly increment, consisting of 14,000 males and 5,000 females, may be killed each year without damage to the existing state of the rookeries, which should thus remain at a fixed number. The death-rate allowed is probably sufficient to cover all but very exceptional natural causes of loss.

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If, however, under these circumstances, no females be killed, an addition of 5,000, or 5 per cent., on the whole number of females, will accrue to the rookeries yearly; and such increase, to maintain the requisite proportion of the sexes, will call for a similar increase of 5 per cent. in males, or 500 males; thus reducing the number of males which may be killed, if killing is restricted to this sex, to 13,500 annually.

*Bryant estimates that during the first year 60 per cent. of the young are lost, during the second year 15 per cent., but before they arrive at maturity at least 10 per cent. more are destroyed. "Monograph of North American Pinnipeds," p. 407.

With such an annual increase of 5 per cent. to the entire herd, this should double in number in about every fourteen years.

Thus, about 770,000 breeding seals should produce annually 100,000 killable males of an average age of 4 years, and still allow for a 5 per cent. annual increase of the breeding seals.

374. Adding to the assumed unit of 110,000 breeding seals, male and female, the number of non-breeding seals required by Bryant's per-centage estimates of loss by death of young, the following figures would represent the whole number of such seals at any one time:

Pups, just born	100,000
Yearlings	40,000
2-year-olds	35,000
3-year-olds	33,000
Effete seals of both sexes, say	50,000
Total of non-breeding seals	258,000

375. Adding to these the breeding seals, the whole number of seals present, when 30,000 may be killed annually without decreasing the aggregate number, would be 368,000, and proportionately, in order to produce an increase of 100,000 annually, a total number of 2,576,000.

376. As a matter of opinion, based on such information as we have been able to obtain, and notwithstanding the much larger number given to the islands by several of the estimates previously quoted, we are inclined to doubt whether the whole number of seals frequenting the Pribyloff Islands has ever, since the exceptional slaughter of 1868, actually exceeded 2,000,000. There can be no possible question that the actual number has been very greatly exaggerated in most of the computations made. If this opinion be approximately correct, it is evident that an annual slaughter of 100,000 males might lead to just such a continuous and cumulative decrease in total numbers as is elsewhere shown to have occurred before pelagic sealing had entered into the question.

(N.)—*Various Natural Indications of former Extent of Ground occupied by Seals on the Pribyloff Islands.*

377. It will be understood, that on the Pribyloff Islands all parts of the surface above the reach of the waves, and not too rocky or too entirely composed of loose sand, is, in consequence of the humidity of the climate, naturally covered with grass, but that on the areas running back from the shore with a greater or less width, which are occupied as rookeries or hauling-grounds by the seals, the constant movement and passage of these animals entirely prevents any vegetable growth. Thus, these resorts of seals, when seen even from a considerable distance, are quite distinctly marked as bare, earthy slopes. When more closely examined, it is further found that the rocky projections and scattered angular rocks, which are common to a greater or less extent to nearly all the rookery grounds, have had the angles more or less polished and worn by the constant movement of the seals over them. The rocks being generally basaltic contain no very hard minerals, and there being a certain proportion of silicious matter in the sand, this supplies a very efficient polishing material, which is applied by the flippers and bodies of the seals. The polish thus imparted to portions of the rocks is different from that produced by wind-drifted sand in being chiefly confined to points and angles, and is thus easily distinguished from it.

378. It is found that such partly polished rocks are characteristic particularly of the seaward side of the several rookery grounds, and that further inland, and at greater distances from the central parts of the several rookeries, the appearance become less and less well marked, till it at length ceases to be observable.

379. It is evident that the polishing and wearing down of rocky angles in the manner above described can have occurred only during long series of years; but it is also evident that the occupation
68 of the same spot by large numbers of seals, say once in every third or even every fifth or tenth year, would be sufficient to render the polishing process practically continuous. That, in fact, any particular rocky spot, if not occupied for intervals of several or many years, would not in such intervals lose the traces impressed upon it by former occupation, and that, if reoccupied from time to time, these traces would become cumulative. Experience gained in connection with the examination of polishing due to the glacial period in other regions, impressed on just such rocks as those of the Pribyloff Islands, shows that such polishing is exceedingly enduring, and that the mere action of the weather upon polished rock angles, like those found upon some of the breeding grounds, cannot have perceptibly operated in the direction of their obliteration since the earliest human knowledge of the Pribyloff Islands. Otherwise stated, it may be safely asserted, that while affording no valid evidence of recent occupation, such traces give invaluable evidence as to the whole area at any time long occupied by large numbers of seals during the past few hundred years.

380. In consequence of the want of actual information as to the extent of seal-occupied ground about the various breeding places on the Pribyloff Islands in various years, a very general tendency is apparent, even among those who have been familiar with the islands for several years, to magnify the conditions of the past at the expense of the present, and free scope is often given to the imagination in describing the former extent of various rookeries and hauling grounds. An excellent corrective to generalizations of this kind was found, however, in noting the bare or lichen-covered surfaces of the scattered rocks. The climate, as well as the rock surfaces of the Pribyloff Islands, are well adapted to the growth of lichens, but where seals have been in any considerable numbers, no lichens are found on any surface over which they can climb, or which has been within the reach of their flippers. A knowledge of the very slow growth of lichens was sufficient to indicate that where such accessible rocks were well lichen-covered, seal life must have been but scantily, if at all, represented for a long term of years.

381. An observation of this particular fact, continued from rookery to rookery over both islands, showed that the lichened rocks often extended quite to the limits of the ground still annually kept bare of grass by the seals. By this statement, it is not meant to affirm that the lichened rocks and stones were always and everywhere conterminous with the limit of the bared ground, but that in many cases easily accessible points of ground touched these limits, both on St. Paul and St. George, and thus proved that the seal-frequented area had not continuously overpassed the actual limits for a considerable number of years, and that vague statements to a contrary effect were necessarily erroneous. This was particularly noted on West Zapadnie Rookery, on certain parts of the Reef rookeries, and those of North-East Point on St. Paul, and on the Little Eastern Rookery on St. George; but as a criterion, it was in a lesser degree distinctly observed on nearly all of the breeding grounds.

382. To render the meaning of this fact clear to those who have not particularly paid attention to this subject, the following quotation may be given from the article on lichens in the "Encyclopædia Britannica":*

In this fitful and abnormal life of lichens, we have the explanation in a great measure of their almost indefinite duration of existence. It is well known that they are perennial plants in the widest sense of this term; and that, though in the earlier stages of their existence, their growth is comparatively rapid, yet this becomes extremely slow when they arrive at a certain age. The time required for the development of even the most rapidly growing species may be calculated by the appearances of such of these as are met with on gravestones, mortar of houses, stone walls, wooden palings, and such like, the date of whose erection is known. Amongst other instances that have come under the present writer's own observation may be adduced the case of *Physcia parietina* [the common grey lichen of the Pribyloff Islands is a *Physcia*], growing in fair quantity on the stones of a granite wall, built in 1836, in a maritime district where the plant is extremely abundant, and where the atmospherical and other conditions are well suited for its growth. In a recent visit to the spot, it was found that although the thallus is now well developed, no fructification whatever is visible, though traces of spermogones are beginning to appear, so that, in a space of forty-five years, this plant has not yet attained full maturity.

383. Still another characteristic of the rookery grounds is, that their surfaces are generally composed, especially in hollows subjected to little wear, of a felted coat of mud and hair. In the damp climate of the Pribyloff Islands this characteristic does not endure very long, and when any particular area is abandoned for a few years by the seals, it soon becomes again covered with grass.

69 384. This last circumstance leads to the consideration of a fact, upon which much stress has lately been laid, in connection with the estimation of the present and former areas of the rookeries and hauling grounds. It is quite noticeable that when an area doubtless originally covered with rough, tussocky grass of long growth, and of the character normal to the islands (and generally or always confined to the single species, *Elymus mollis*), has been occupied by seals for such a time as to eradicate this grass and smooth down the lumpy surface upon which it grew, the temporary or permanent abandonment of the area is followed by the appearance on it of grasses of a shorter and closer growth, and which in the later summer and autumn sooner assume yellowish colours, in consequence of which the outlines of the previously occupied area become clearly defined. It is quite natural, that in the unfortunate absence of any consecutive record of the extent of the rookery grounds, or of correct or comparable estimates of the number of seals upon them or upon the islands as a whole, these "grass limits," as they may be called for brevity, have been seized upon as something tangible.

385. The "grass limits" are often quite readily observable, particularly from a little distance, and some special attention was given to them in order to ascertain, as far as possible, to what extent they might be employed as a criterion of change, and particularly of diminution in the areas frequented by seals, or in the aggregate number of seals resorting to the islands.

386. It may be mentioned, in the first place, that the grasses to be found in these particular areas are not in themselves peculiar, but it is merely the predominance of certain forms and their mode of growth which seems to outline such areas, the most abundant grass being apparently *Deschampsia* (*Aira*) *cæspitosa*, with which the little cruciferous plant *Cochlearia officinalis* is often mingled. Farther, that a very similar growth and colouration is found in other parts of the islands, which have never been known to be, and which in all probability never have been, frequented by fur-seals; as, for instance, on the easterly

*Ninth edition, vol. xiv, p. 558.

slopes of the low hill upon which the flagstaff stands at St. Paul village. Making due allowance, however, for these and other accidental circumstances, the fact remains that, surrounding all, or nearly all, the present rookery grounds, there is a margin of varying width, and not always concentric with the still bare area, pretty clearly marked out by such difference of sod.

387. Respecting the time which it might take for any portion of seal-worn ground to revert to its original tussocky condition if undisturbed, little can be said with certainty, further than that it must be many years. The tussocky character of the general surface upon the islands has arisen in the course of time and by the persistence of grass-clumps, about which sand and soil carried by the wind have collected, and vegetable matter produced by continued growth has accumulated. Experience on the western plains of North America, where a buffalo-path or cart-trail is sometimes found to have retained its identity, with little apparent change for thirty or more years, would indicate that the time of reversion here to the original state of the surface cannot be placed at less than perhaps fifty years, while a century would, in all probability, more nearly represent it.

388. Without, however, attaching any importance to particular limits of time, it is perfectly clear that both in the extent of the seal-polished rocks and in that of the distinctive vegetation, we see marked the greatest expansion which the areas so characterized have at any time attained during the last 100 years or so, and that these traces thus carry us back so far as to render them of little value in the elucidation of the changes of late years. Still further, it is obvious that such limits need not, and probably do not, quantitatively represent the actual expansion of the seal herd centering about any given rookery ground, but, on the contrary, indicate an outer boundary, within the limits of which the seals have oscillated during a long term of years. The extraordinary fixity which has been attributed to the rookery areas and hauling grounds, arising naturally from a popular exaggeration of their sub-permanent character, has alone rendered it mentally possible to advance to the further stage of belief, which has induced some writers to assume that the whole of the areas showing traces of seal occupation have been at some definite time simultaneously and closely occupied. There is no basis for any such belief in nature, or in the observed habits of the seals, and any reference to it with this meaning involved, merely tends to cloud the consideration of the true facts of the case.

389. Dr. McIntyre, in a passage already quoted, refers clearly to this point, and the facts previously given in connection with changes in the rookeries further illustrate it, though it is not at once grasped in an inspection of the seal islands for the first time, or in one confined to a single period of the year. It is, moreover, very easily understood that any one with but a general remembrance of the former greater abundance of seals on the islands, if asked to indicate the limits occupied by them and groping for some tangible means of doing so, should seize upon the "grass limit" as affording this means, and maintain that that limit is co-extensive with the spread of the seals in the "sixties" or in the "seventies," as the case may be.

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390. The best locality actually found for observing the circumstances connected with old seal-frequented areas was that of the important rookeries of North-East Point. The "grass limit" was there particularly well marked, especially in the month of September, and it was noted that the rocks with polished edges scarcely, and then only in a very slightly marked form, extended as far as the "grass limit," giving reason

to believe that the ground had been at no time thickly or very continuously frequented by seals to this limit. The nearly straight shore-line running eastward from Hutchinson Hill is almost, or practically quite, continuously occupied by breeding-seals, though these occupy a much greater width in some places than in others. As early as the 5th August, 1891, it was observable from Hutchinson Hill, in connection with the general change in the rookeries at about this date, that considerable bodies of seals had worked back in three places quite to the margin of the "grass limit," and in a fourth had almost reached this limit. In thus working inland, the respective bodies of seals had formed four "bays," gradually narrowing toward the inner ends, where the greater number of seals were at the time gathered, but of which the limits were quite distinctly marked by the flattening down and partial disappearance of the short grass, and the fact that mud and sand had been drawn over it by the restless movement of the seals. This observation alone was sufficient to indicate that even the present number of seals might naturally, in the course of a few years, work over every part of the territory on the seaward side of the general "grass limit," and that this limit might thus be perennially maintained.

391. When the same part of the North-East Rookery was re-examined in the middle of September, though there were still some large "pods" of seals scattered out as far as the "grass limit," the arrangement above described had partly broken up, and the "bays" were not so distinctly outlined, as recent rains had washed and partly revived the seal-trodden grass by which they had previously been marked out. The seals occupying the "bay" nearest to the base of the hill had, however, moved still further back, and were actually in occupation to the number of 2,000, or thereabouts, of an area of the longer and tussocky grass to the rear of the general "grass limit." At the same date, near the western base of the long slope of Hutchinson Hill, a considerable area of the shorter turf on the seaward side of the "grass limit" was found to show obvious traces of having been occupied by a large number of seals for some days at least, though they had subsequently abandoned it for some other locality. Here, again, one corner of the area thus marked out by recent occupation overpassed the "grass limit," and covered a superficies estimated at about 50,000 square feet of the long tussocky grass, which showed no sign of previous occupation by seals. The shorter grass had naturally suffered more than the longer, being flattened down, partially worn off, and pressed into the mud. The longer grass in the course of a year will probably show no trace of its occupation.

392. Passing now to several changes of the same general character noted on the Reef Rookery: As early as the 18th August, not only was a larger number of seals than before observed (mostly holluschickie) seen hauled out on the outer part of Zoltoi sands, at the inner end of Reef Point, but they were also scattered in considerable numbers far back on the hill. There were in all probably about 3,000 seals here at this time, and one-half of them were estimated to be "killable" seals. On the 15th September large droves of seals were resting or travelling about all parts of the bare "parade ground" between the Reef and Gorbotch rookeries, which had on previous visits, six weeks and nine weeks before respectively, been but scantily occupied, and which, if noted only in the earlier part of the season, would have been characterized as an area practically abandoned by seals. The only notable exception to this occupation was the grassy flat to the southwest of "Fox Hill," which for some reason was not frequented, and shows little

sign of having been much occupied either in this or former years. While, therefore, it might easily have been assumed at earlier dates in the season that the bare slopes of the "parade" indicated the former existence of great masses of seals unlike any now to be found, the reason of the absence of grass upon them, even under the present circumstances, became perfectly obvious on a later inspection.

393. Before leaving this particular subject, it may be well further to mention that there is on the North-East Point a considerable area of what may be called "spurious grass limit," to the west of the slopes of Hutchinson Hill, and extending nearly to Cross Hill. Here there is a flat, spreading back from the beach and bounded on the inland side by a low rise or step, which might easily be mistaken for a very wide expansion of a former rookery ground, but which is in reality not due to any such cause, but is physically different. The higher flat,
71 running inland from the step or low bank just referred to, is chiefly composed of loose, porous sand, a few feet only in thickness at the edge, but extending in greater or less thickness over a considerable portion of the interior of the whole North-East Point peninsula. This is overgrown by rough, tussocky grass. Between the edge of the step and the sea the superficial sandy covering has been removed, probably by the action of the wind and sea in exceptional storms, and has exposed a stony and bouldery lower surface, on which volcanic soil rather than sand is packed between the rocky fragments. All that part of the lower area which is grassed, is covered with a shorter and yellower kind of grass. No distinct "grass limit" can, therefore, be traced across it, and it is impossible in this place to outline the maximum limit of seal occupation at any period except by the polished character of the rocks, a feature which ceases to be observable long before the edge of the upper flat is reached.

394. The general features here described are well shown in the sketch forming Plate IX in Mr. Elliott's Census Report, though in this sketch, for artistic effect, the horizontal distances are considerably reduced in proportion to the vertical dimensions. The sinuous line of the edge of the higher flat may be clearly traced by the longer grass, and it is obvious that the seals did not approach this line even at the time this sketch was made, or in 1872–74. A photograph taken from the same point of view in 1891 indicates the structural peculiarities of this stretch of ground still more conclusively.

395. It may therefore be stated, in concluding the consideration of this subject, that neither the extent of the seal-polished rocks nor that of the "grass limits" in the vicinity of the breeding grounds, can be trusted to for the purpose of giving information as to changes in area or position of ground occupied by seals in recent years, as contrasted with that at present occupied. Far less can it be taken to indicate in any reliable manner the numerical decrease in the seals in these years, or be accepted in place of the annual details on this subject which an intelligent supervision of the rookeries would have exacted as a matter of prime importance, but which are unfortunately wanting, and can only be in part supplied by incidental allusions or collateral observations which have been preserved. Whether considered from a general point of view, or in the light of the special inquiries made in 1891, such indications as those above referred to must be admitted to mark out only the maximum average limit of oscillation and range of seal occupation during a very long period of years. While, therefore, exact recent surveys of the areas marked out by such "grass limits" or otherwise, in the vicinity of rookeries, may possess a certain limited intrinsic

interest, they can have absolutely no fixed value in connection with the practical matters under discussion. It is, in fact, largely to ideas loosely based on the observable extent of ground which has at one time or another, but never simultaneously, been occupied by seals, that many of the exaggerated estimates of the amount of the present reduction in number of seals in the islands may be directly traced.

(O.)—*Changes in Habits of the Fur-seal in recent Years.*

396. The systematic and persistent hunting and slaughter of the fur-seal of the North Pacific, both on shore and at sea, has naturally and inevitably given rise to certain changes in the habits and mode of life of that animal, which are of importance not only in themselves, but as indicating the effects of such pursuit, and in showing in what particular this is injurious to seal life as a whole. Such changes doubtless began more than a century ago, and some of them may be traced in the historical précis, elsewhere given (§ 782 *et seq.*). It is unfortunately true, however, that the disturbance to the normal course of seal life has become even more serious in recent years, and that there is, therefore, no lack of material from which to study its character and effect even at the present time.

397. The changes in habits and mode of life of the seals naturally divide themselves into two classes, which may be considered separately. The first and most direct and palpable of these is that shown in the increased shyness and wariness of the animal, which, though always pelagic in its nature, has been forced by circumstances to shun the land more than before, so that, but for the necessity imposed upon it of seeking the shore at the season of birth of the young, it might probably ere this have become entirely pelagic. Changes of the second class embrace those which have resulted from a disproportion of the sexes, produced by the continuous and excessive killing of males of certain ages, and from new and more destructive methods adopted on the breeding islands because of diminished numbers and other such circumstances. The increasing irregularity and overlapping in the dates in the events of seal life may be included in this latter class.

72 398. Changes of the first class have now apparently become, in a measure, hereditary, while those of the second depend almost from year to year upon the treatment at the time accorded to the seals, and might, in the course of a few years at most, with care, be caused to revert to their former normal condition.

399. Pelagic sealers of experience are almost unanimous in stating that the fur-seal is each year becoming more alert and difficult of approach and capture, while the independent native hunters add their testimony to the same effect, and there can be no question as to the general fact. Such changes are more notable at sea than on the breeding islands, for when at sea the seal is in its natural element, and free to exercise its instincts of self-preservation; when on shore at the breeding season it is, on the contrary, practically defenceless, and, beyond the instinct to attempt to escape from immediate death about to be inflicted by the club or otherwise, it is incapable of seeking safety, and is at the mercy of the seal-killer. Its only refuge, under these circumstances, is to seek, if such may be found, some new breeding-place unknown or inaccessible to man. Captain Scammon, many years ago, adverted to this fact in the following terms: "We may add, likewise, from our own observation, and as the expressed opinion of several experienced sealing-masters, that their natural migrations extend over a great expanse of ocean; and if they are unduly disturbed in their

favourite haunts for several successive years, they are quite sure to seek some distant and unknown place, where they can congregate unmolested by man."*

400. It is doubtless in consequence of this fact, as already pointed out, that the Pribyloff and Commander Islands had long ago become the special resorts of the fur-seal of the North Pacific, and to the same cause must be attributed the abandonment of other breeding grounds formerly frequented by this animal, as well as the attempts to take up new rookeries which have been mentioned when describing the facts of seal life along the western shores of the North Pacific.

401. As above stated, nearly all the pelagic sealers concur in the opinion that the fur-seal is annually becoming more shy and wary at sea. They add that this is most apparent in that part of the east side of the North Pacific to the south of the Aleutian Islands, but that it is becoming equally marked in the eastern part of Behring Sea; while in the western part of the sea, where pelagic sealing has as yet been scarcely practised, the seals do not show the same fear of boats, and are more easily approached. It is thus evident that greater skill and caution is annually required on the part of the pelagic hunters, and on the assumption that the number of seals met with at sea has remained the same in proportion to area of surface, the statistics quoted on a later page respecting the catch made in relation to each boat employed, would appear to show that the dexterity of the hunters has increased, *pari passu*, with the wariness of the seals.

402. The facts observed by the pelagic sealers in regard to the abundance or otherwise of seals at sea have important bearings on the general question of the whole number of seals now or in recent years inhabiting the North Pacific, and also when taken in conjunction with the reduction in numbers on the breeding islands, in evidencing the changes in habits here specially referred to. The general tenor of the whole of the evidence to be obtained on this particular subject, whether directly by ourselves or from other sources, shows that though changes in position are noticed from year to year, no decrease in numbers has occurred at sea, while an actual increase is in many cases reported. This circumstance of the continued abundance of seals at sea in the whole tract of ocean frequented by the pelagic sealers is so notable, and at the same time so entirely opposed to some loose general statements as to diminution which have found currency, that some evidence relating to it may properly be adduced.

403. In 1889, Captain J. O. Warren, whose experience is entirely pelagic, as he has never been within sight of the Pribyloff Islands, says: "I have noticed no diminution in the number of seals during the twenty years I have been in the business, but if any change at all an increase."† Captain W. O'Leary says, in the same year: "I do not, think there is any decrease in the number of seals entering Behring Sea. I never saw so many seal along the coast as there were this year, and in Behring Sea they were more numerous than I ever saw them before."‡ In the following year Mr. A. R. Milne, Collector of Customs at Victoria, after detailing his inquiries made from pelagic sealers, says: "I can now safely repeat what I have already said and written, that owners and masters do not entertain the slightest idea that the seals are at all scarce."§

* "Marine Mammalia," p. 152.
† Parliamentary Paper [C. 6131], p. 356. London, 1890.
‡ Ibid., p. 357.
§ Parliamentary Paper [C. 6253]. London, 1890.

73 404. Messrs. Carne and Munsie, in a letter, dated the 31st October, 1890, addressed to Mr. Milne, state that while the seals had in that year, both in Behring Sea and along the coast, to some extent changed their grounds, they did not appear to be any scarcer than when they first engaged in the sealing business in 1884. In 1890, they found the seals most plentiful to the north and eastward of the Islands of St. Paul and St. George, and distant from them from 35 to 60 miles, while in former years they were most abundant to the westward of these islands. All their captains reported that the seals were as plentiful as ever in Behring Sea, and attributed the comparatively small catches made to the rough and foggy weather that prevailed during the season. Captain J. S. Cox, in a letter bearing the same date as that from which the above statements are taken, and addressed to the same gentleman, says that the masters of his schooners report that the seals are not getting any scarcer. The limited catch made was, in their opinion, due entirely to the bad weather which prevailed in Behring Sea during the sealing season. They found the seals most plentiful to the east of St. Paul and St. George Islands. Messrs. Hall, Gœpel, and Co., in a letter, dated the 1st November, 1890, and also addressed to Mr. Milne, state that the captains of their schooners found the seals to be as plentiful as in any previous year, but that, owing to the foggy and boisterous weather encountered in Behring Sea, very large catches were not made.

405. During the month of January 1892, several captains of sealing-vessels, and hunters on such vessels, were examined under oath by Mr. Milne at Victoria, and from their evidence the following statements as to the relative abundance of seals in 1891, as compared with former years, are taken:

Mr. C. J. Kelly found the seals as abundant as formerly along the coast to the Shumagin Islands.

Captain Wm. Petit followed the seals north from Cape Flattery, and says:

> I found them more plentiful last year than I have any year since 1886; that is, from Cape Flattery north . . . . In Behring Sea as plentiful as in former years . . . . We saw more last year than for several years previously.

Captain W. E. Baker reported the seals to be as plentiful along the coast to Shumagin Islands as in former years, "in some places more plentiful." He says: "No material difference in my average catch for last four years."

Captain A. Bisset followed the seals north from Cape Flattery and found them as abundant as ever before.

Captain T. M. Magnesen says:

> I think they [the seals] were more plentiful last season than I ever saw them before . . . . The biggest catch I have ever made was last year, on the coast as well as in Behring Sea.

Henry Crocker thinks, from what he saw of the seals, that "they were just as many as before."

Richard Thompson believed the seals were as plentiful as in the previous year.

Andrew Laing had observed no decrease in the number of seals; "if anything, they were a little more numerous than in 1890."

Captain W. Cox took 1,000 seals in four days, 100 miles to the westward of the Pribyloff Islands. He found the seals much more plentiful in Behring Sea than he had ever seen them before.

406. Similar evidence of a general character, and confirmatory of the statistics just quoted, was obtained by us in the autumn of 1891 from

a number of sealing captains and hunters, to the effect that the general experience was that seals were equally or more abundant at sea this year than they had been in former years.

407. The actual success of individual sealing-vessels of course depends so largely upon the good fortune or good judgment which may enable them to fall in with and follow considerable bodies of seals, as well as on the weather experienced, that the figures representing the catch, compared to the boats or whole number of men employed, constitute a more trustworthy criterion than any such general statements.

74 *Comparison between the number of Boats and Men employed in the Fur-seal Fishery and the number of Seals taken. (Only Vessels sailing from Victoria are included.)*

Year.	Number of Seals.	Number of Men.	Average per Man.	Number of Boats.	Average per Boat.
1887	20,266	361	56	123	164
1888	24,329	442	55	170	143
1889	27,868	481	58	179	156
1890	39,547	665	59	246	160
1891	49,615	981	46	353	* 134

* In 1891, nearly all the schooners were warned out of Behring Sea some weeks before the expiry of the ordinary hunting season.

408. In considering the general bearings of the above statements obtained from pelagic sealers, and of the numerical facts derived from an analysis of their catch, it must be remembered that the vessels engaged in sealing are able to carry on their work wherever the seals may be found, and that the tendency of the seal to keep further from the shores does not materially affect their success. It is otherwise with the independent native hunters, who employ the shore as their base of operations, and it is therefore chiefly from the observations made by these men that an idea can be formed of the recent changes in habits of the seals. It must be noted here, however, before quoting this particular evidence, that circumstances of wind and weather, as well as the abundance or otherwise of suitable food for the seals, have a great effect locally on the numbers of seals of which the natives are cognizant, and that it is, therefore, rather on the general tenor of their observations than on any isolated notes that broad conclusions may be safely based.

409. In the Aleutian Islands, the natives questioned at Ounalaska began by stating that the number varied much from year to year, but the oldest among the hunters said that it had been about the same for the past five or six years.

410. At Kadiak Island, Mr. Washburn, the local agent of the Alaska Commercial Company, expressed the opinion that seals were four times more numerous in the vicinity of the shores of that island five years ago than at present, and that the number seen there had decreased notably within the last two years. The seals did not now come in to the shores as before, and did not enter Prince William Sound in large numbers as they had previously done, but remained at sea in the neighbourhood of the Portlock and other banks.

411. The same gentleman informed us of the interesting fact, related by the natives of Kadiak, that one season, now many years ago, several hundred fur-seals had formed a breeding rookery on one of the islands in Shelikoff Strait, but that this attempt had not been continued. In June or July 1891, one recently born seal pup had been seen with its mother near the shore, about 20 miles to the west of St. Paul on Kadiak Island. This, however, was the only instance of the kind he could vouch for.

412. At Sitka, both Whites and Indians, familiar with the sealing business, stated that the hunters complained that the seals were now wild and difficult to approach, and united in attributing the comparatively small native catch of 1891 to this cause. They think that the number of schooners engaged in the fishery is the reason of this increased wariness. Captain Morrisay stated that he did not think the seals were less numerous at sea this year than before, but that, on the contrary, all accounts show that they were more abundant than usual, and that a good catch would have been obtained had they not been so much disturbed by vessels. The Indians aver that long ago the seals were very numerous about Sitka, and it is a tradition or legend, that in early times they frequently landed on the islands in that vicinity. Within the memory of the living hunters, single seals had been seen ashore in various places on the islands off Sitka and near Cape Edgecombe. Two years ago, a female had been seen on the beach on the outer side of Cape Ommeny.

413. Among the Indians from Klawok, an old man explained that in the time of his great-grandfather there were vast numbers both of seals and sea-otters in that vicinity, and that the old people said that in these times the seal gave birth to its young there. He had never heard, however, that there were any special places to which the seals resorted for that purpose.

414. In the northern part of Queen Charlotte Islands, the Indians state that the seals have now become so timid, that in a hunting season of two months they sometimes kill about thirty seals only to a canoe, whereas they formerly were often able to get the same number in one day. When they first began to hunt seals systematically, they generally got them 5 or 6 miles from the shore, whereas at the present time they had to go 15 or 20 miles. They attribute this change to the schooners which they see engaged in hunting off their coast. Edensaw, the old Chief, said that many years ago the seals were often found lying together on the water almost touching each other, and 30 or 50 in a bunch, but that now they are more widely scattered. He further stated, that in former years he had sometimes seen full-grown bulls coming ashore in various places on the west coast of the islands in spring. Not many years ago, he had seen a female with a recently born pup on the shore near Cape Kaigani; and once, long ago, he had found a female seal in the act of giving birth to two pups on Rose Spit. These facts are of particular interest, from their bearing upon the statements quoted by Professor J. A. Allen, on the authority of Captain Bryant, now more than ten years ago, for while they do not directly confirm this statement, they tend to support it. Referring to Captain Bryant, Professor Allen writes: "In his MS. Report just received, he states that a half-breed hunter told him that he found in summer, on Queen Charlotte's Island, groups of these animals, consisting of two or more beach-masters, with a dozen or more females and pups, but no half-grown males."*

75

415. Speaking of the same vicinity, and as the result of long experience, Mr. Alexander Mackenzie said that, judging from the number of skins taken, seals were less abundant than formerly in Dixon Entrance, but that the fact must also be taken into consideration, that there were not now so many good hunters as before among the Indians. In 1881–82 and 1882–83 many skins were got, but in the years since 1885 the number of skins had been smaller than before.

* "Monograph of North American Pinnipeds," p. 333.

416. The Indian hunters of the Tshimsian tribes say that before the seals were so much hunted, some of them used to give birth to their young on rocky islets in Hecate Strait. Living hunters had seen this.

417. At Bella-Bella, the Indian hunters stated that as long as they themselves could remember, seals were very abundant in that vicinity. They had gradually decreased in number till about four years ago, since which they had been moderately abundant for three years, and in 1891, had shown a marked increase in number. They sometimes, but rarely, saw seals, both male and female, coming out on the rocks. Two or three had at various times been killed on shore.

418. The Indians of Nawitti, who hunt about the north end of Vancouver Island, had no complaint to make of scarcity of seals. They said, on the contrary, that the hunting further at sea by schooners had, they thought, driven the seals into the entrance of Queen Charlotte Sound in greater numbers than before. They had occasionally seen seals of different ages sleeping on the rocks.

419. At Clayoquot Sound, on the west coast of Vancouver Island, seals were said to have been very numerous long ago, but to have been seen in smaller numbers for some ten or fifteen years past. At Ahouset, also in Clayoquot Sound, the Indians said they had never seen or heard of seals coming ashore to breed, or for any other purpose.

420. At Neah Bay, near Cape Flattery, the Indians stated that the seals seen by them, in that vicinity, are now fewer and more wary than before, and more difficult to kill. They have never seen even a single seal on the rocks, but always at sea.

421. Referring to the same place, Judge J. G. Swan writes, in 1880, that between 1857 and 1866 seals were very few, but that since that time they had appeared in much larger numbers.*

422. Mr. R. Finlayson and Mr. T. Moffat, both long identified with the Hudson's Bay Company on the West Coast, believe that the fur-seals became notably more numerous in the waters adjacent to the coast of British Columbia about the time the Alaska Commercial Company obtained possession of the Pribyloff Islands. This they attribute to some difference in the mode of capture practised on these islands, in consequence of which the seals changed their former habits. Captain Bryant has also particularly referred to the abundance of fur-seals along the coast of Oregon, Washington, and British Columbia in 1869.†

423. Some years in which exceptionally large numbers of seals have been noted along various parts of the coast of British Columbia are referred to in other parts of this report. (See particularly § 223.)

424. On another page, and in connection with the subject of the
76 migrations and habitat of the fur-seal, Mr. J. W. Mackay has been cited with reference to the former abundance of seals upon the southern part of Vancouver Island. His informants on this point were old Indian hunters of the Songis, Sooke, and Tlalum tribes, inhabiting the adjacent coasts. The following additional statements by the same gentleman, from their bearing on changes in habits of the seal, may appropriately be included here: "The Indians above quoted stated that the fur-seal bred on the Race Rocks, on Smith's Island (Washington), and on several islands of the Gulf of Georgia. They used to have their young to within a recent period on the Haystack Islands, off Cape Scott, Vancouver Island. It is probable that a few individuals still breed

* "Fishery Industries of the United States," vol. ii, p. 394.
† "Monograph of North American Pinnipeds," p. 332.

there, these islands being very inaccessible to small craft on account of the strong tides and cross currents which prevail in their neighbourhood."

Mr. Mackay's authority for the first part of the above statement are the Indians previously referred to, and the matter must even, at the early date at which Mr. Mackay first knew them, have become traditional.

425. Under the heading of Migrations and Range (§ 171 *et seq.*), sufficient allusion to the former abundance of fur-seals on the Californian coast, and to their breeding places there, now apparently abandoned, has been made. Further particulars may be found in Scammon's work and elsewhere.

426. From the foregoing notes, it may be gathered that the increasing timidity of the fur-seal has caused it almost completely to abandon its original habit of occasionally landing elsewhere than on the main breeding islands, and has led, besides, to the probably complete abandonment of certain local breeding places where small numbers of seals resorted in former years. Not only so, but the seals now shun more than ever the entire vicinity of the coast, and are found at sea in undiminished quantity only by the pelagic sealers, whose operations do not depend on proximity to the land. The same instinct has its effect also on the breeding islands, to the continuous harassing of the seals upon which its growth is doubtless in large part due. On the islands, it shows itself particularly in the late arrival, short stay upon, or continued avoidance of, the shores by those seals not actually engaged in breeding; as well as in erratic variations in proportional numbers of seals of different classes at various seasons. These changes cannot be wholly attributed to the operations of the sea-sealers, for though not so striking on the Commander Islands as upon the Pribyloff Islands, they are still observable there, though the contingent of seals visiting these islands belong as a whole to a different migration-tract, which has scarcely as yet been touched by pelagic sealers.

427. The fact that the breeding islands are now inhabited by man, is in itself an anomaly, and particularly so when the protection of the seals on these islands is combined with the requirements of a large annual slaughter. Such circumstances need to be hedged about with most rigorous precautions, in order that they may remain compatible with the continuous prosperity of seal life. More care is taken in this respect on the Commander than on the Pribyloff Islands, but even there improvement seems possible. On the Commander Islands, great precautions are observed to prevent the smell of smoke reaching the rookery grounds, particularly early in the season, when the seals first land. Coal-oil is used for cooking in the houses near the rookeries at this season, and all fires are quenched when the smoke blows in the direction of the rookeries. Smoking is not permitted near the rookery grounds, and no one is allowed in their vicinity (unless for purposes of collecting a drive) but the superintendent of the island or the foreman in charge of the rookeries.

428. There are, however, in addition to actual fear and the instinct of self-preservation, other causes which now render the breeding islands, and particularly the Pribyloff Islands, less continuously the resort of seals than formerly. Chief among these is the paucity of virile males, which makes the islands less attractive to the females, and, besides, has resulted in the existence of a large and increasing class of barren females, which do not find themselves under the necessity of seeking the shore.

429. On this point, speaking of an early date in the history of the islands, Veniaminor writes: "This opinion is founded on the fact that never (except in one year, 1832) have an excessive number of females been seen without young; that cows not pregnant scarcely ever come to the Pribyloff Islands; that such females cannot be seen every year."*

430. To this may be added the probable circumstance, that the constantly harassed and now much reduced number of young but already virile males, meet the females more commonly than before at sea.

77 431. The occurrence of increased numbers of barren females has been more precisely noted on the Commander Islands than upon the Pribyloff Islands, probably because, as the result of a better system of protection there, these animals still come to the rookery grounds instead of staying at sea. In 1891, a large number of females were observed to be without young both on Behring and Copper Islands.

432. In the eastern part of the North Pacific, the increased number of barren females has principally been observed by pelagic sealers. Their statements on this subject, whether those already published or those obtained by ourselves in conversation, are of course of a general kind, but they show that while barren females are more common than before to the south of Behring Sea, nearly all the adult females got in Behring Sea itself are of this class. The Indian hunters of the Queen Charlotte's Islands, moreover, informed us, without being specially questioned on the subject, that years ago the females killed by them were always with young, but that this was now no longer the case. Mr. A. Mackenzie, of the same place, stated that about two-thirds only of the females killed were with young.

433. Upon the Pribyloff Islands in 1891, we did not ourselves note any great abundance of barren females, but the facts in this matter would be scarcely apparent to those not intimately connected with the rookeries for more than a single year. In his official report on the condition of the islands in 1890, Mr. Elliott states that there were then 250,000 females "not bearing, or not served last year and this," but he does not explain in what way this numerical estimate was arrived at.†

434. One direct result of a paucity of virile males, is to bring about an irregularity and change of dates in the events of seal life, which is especially notable upon the breeding islands in an unwonted absence of the usual precision and simultaneousness in these events. Instances of this are found in the recorded history of the Pribyloff Islands, elsewhere cited, and facts of the same kind are again markedly apparent at the present time. Such irregularities follow from the circumstance that the period of gestation of the female is nearly twelve months in length; and that therefore any want of promptitude in reimpregnation carries the time of birth on to a date later than usual in the following year. It is easy to see that such delay having once occurred, the female, under the most favourable circumstances, can only revert gradually and after several years to her original time; and that by a recurrence of delays in impregnation the change of time will not only be carried on from year to year, but must gradually depart more and more from the normal date. One important effect of the resulting late birth of the young is to render these much more than otherwise open to danger of various kinds, not only to that resulting from inclement and stormy autumn weather

* Quoted in United States Census Report, p. 141.
† Parliamentary Paper [C. 6368], p. 61.

occurring while they are yet too young to withstand it, but also from the circumstance that they must delay longer upon the breeding islands, and must perhaps in the end leave these islands before their strength is sufficient for the long southern journey.

435. The best account of the nature of such changes in earlier years is that given by Bryant, which is elsewhere quoted in abstract. The changes now apparent on the rookery grounds of the Pribyloff Islands, as compared with the previously described state of these grounds, and as pointed out by those familiar with them, are chiefly of the following kinds:

436. A general decrease in the number of seals, which is most marked in the disproportionally small number of holluschickie or males of an age of less than about 6 years. Allusion has already been made to this in connection with the marked increase in size of the "harems" or cows held by a single adult bull, in late years. It is also strikingly apparent when the present conditions are contrasted with the descriptions of former years, in which the half-grown but already virile bulls are represented as haunting the vicinity of the breeding rookeries in great numbers, and constantly struggling to meet the females upon them, or in the margin of the adjacent sea. It is further indicated, and very definitely, by the practical impossibility of procuring more than 21,000 male skins in 1890, though every exertion was made to do so, and the standards in weight of skins were greatly lowered, in order to allow the inclusion of very young males. This effort was continued till it became patent to the Government officers in charge that it was useless and cruel to allow it to go further, because of the very large and constantly increasing numbers of non-killable seals which were driven and redriven to the killing grounds, in order to obtain a few passable skins. On this subject it may be well, however, to allow these officers who witnessed and superintended those killings to speak for themselves.

437. Mr. C. J. Goff says: "Heretofore, it was seldom that more
78 than 15 per cent. of all the seals driven the latter part of June and the first few days in July were too small to be killed; but this season the case was reversed [notwithstanding the lowering of standards], and in many instances 80 to 85 per cent. were turned away . . . The season closed on the 20th July, and the drives in July show a decided increase in the percentages of small seals turned away, and a decrease in the killables over the drives in June, demonstrating conclusively that there were but few killable seals arriving, and that the larger part of those returning were the pups of last year."*

438. Colonel J. Murray gives an account of a meeting of the natives held for discussion in the same year and long continued, after which—"They unanimously declared that it was their firm belief and honest opinion that the seals have diminished, and would continue to diminish from year to year, because all the male seals had been slaughtered without allowing any to come to maturity for use upon the breeding grounds;" he adds: "I am now fully convinced by personal observation that it is only too true, and that the natives were correct in every particular."†

439. Captain A. W. Lavender says: "The writer was surprised when he first visited the rookeries to find no young bull seals upon them; this looked strange to him, and he began to look up the cause, and it occurred to him that the constant driving of young male seals, and the killing of all the 2- 3- 4- and 5-year olds, that there were no young bulls left to go on

* Senate, Ex. Doc. No. 49, 51st Congress, 2nd Session, p. 4. † Ibid., p. 8.

to the rookeries, and without young blood the fur-seal industry will be something of the past in a very few years."*

440. Mr. W. H. Elliott, in his official report for 1890, remarks to the same effect on the exhaustion of the supply of young male seals, and their reduction to a "scant tenth of their number in 1872–74."†

441. It is further noticed on the islands that the rookeries are more scattered and less definite in outline than in former years, and that the remaining holluschickie tend to lie close to the rookery edges for protection, a circumstance which materially adds to the difficulty of collecting drives without unduly disturbing the breeding seals.

442. It is also generally admitted that the dates of arrival of the seals at the islands, and especially that of the arrival of the females, is becoming on the average later each year. It is difficult to arrive at a precise statement on this subject, for obvious reasons, but some authorities place the average delay in arrival of females as compared with earlier years at as much as, or more than, two weeks.

443. On the Commander Islands, where the officers in charge were found ready to afford all information on such points with the utmost frankness, it has likewise been noted that the seals now arrive somewhat later than formerly. In 1891, seals capable of yielding 10 and 12 pound skins were about a week later than usual in reaching Behring Island, and the killing, which on Copper Island generally begins about the 1st June, did not begin in 1891 till the 22nd June.

444. Various other irregularities have also been noticed in late years in or about the Commander Islands. Thus, in 1890, there were rather few holluschickie, and females appeared in smaller numbers. Again, it was remarked particularly on Copper Island, that though there had been a large number of young born in 1890, yearlings came ashore in markedly small numbers in 1891. The natives professed themselves unable to account for this, but it is almost certain that the yearlings, in consequence of the unusually severe onslaught made on the seals in 1890, had simply remained at sea. This explanation is supported by the observation, that an unusually large number of scattered seals were reported at sea between Behring Island and the coasts of Kamschatka and Siberia, in 1891, by the vessels belonging to the Russian Government and Company. In 1890, again, according to Mr. Tillman, an unusual event occurred in the arrival of a number of holluschickie and mature bulls quite fat, at Copper Island, in August. His conjecture was that these might have come from the Pribyloff Islands, but it is possible that these seals had merely remained fishing at sea until this exceptionally late date.

445. The general effect of these changes in habits of the seals is to minimize the number to be seen at any one time on the breeding islands, while the average number to be found at sea is at least proportionately, though, perhaps, in face of a general decrease in total number of seals, not absolutely increased. The regularity of the routes of migration has no doubt been also to some extent interfered with, and it seems probable that the seals may now be more widely scattered at sea both in their winter and summer habitats than formerly.

446. As to the eventual results of such changes in habits, if perpetuated and increased by the continued and further effect of the
79 causes referred to, it is evident that they must ultimately be injurious to all industries based on the capture of the fur-seal. It is probable that the seals might altogether cease to frequent their present breeding grounds in mass, and instead, as has been recorded

* Ibid., p. 9. † Parliamentary Paper [C. 6368], pp. 15, 16, 19, 21, 56, and 57.

in the Falkland and other islands in the Southern Hemisphere, scatter out to form small irregular Colonies beneath cliffs or rocks which are practically inaccessible to man. They would thus doubtless manage to perpetuate their species, but the numbers might be very much reduced, so that the skins would cease to be a factor of commercial importance. The continued prosperity of seal life requires, from its peculiar features, above all things, complete regularity and protection on the breeding places, and, deprived of these advantages, it lies open to many accidents and failures, which must affect it more prejudicially than can be determined from the actual numerical amount of the slaughter for skins. The extract from Scammon's work, quoted in paragraph 399, is to the point in this connection.

(P.)—*Fur-seals Breeding on the Southern Part of the North American Coast.*

447. It is evident that many years ago a considerable number of fur-seals bred in various places along the western coast of North America, and probable that the seals so breeding did not take any part in the migration of the larger body to Behring Sea. Statements previously quoted respecting the fur-seals of the Californian coast show this, and the traditions of the Indians of the coast of British Columbia, particularly those relating to Race Rocks and Smith's Island, appear to have the same meaning. Judge J. G. Swan has also collected much evidence to the same effect, with particular reference to the vicinity of Cape Flattery, which may be found detailed in the "Fishery Industries of the United States" (vol. ii, p. 393), and in the "Bulletin of the United States Fish Commission" (vol. iii, p. 201). Some of his observations we have been unable to confirm, but the statements since obtained from Mr. J. W. Mackay go far to prove that, in still earlier years than those referred to by Judge Swan, a certain number of seals regularly occupied certain breeding places in the vicinity of the Straits of Fuca.

448. Once established, whether on the Californian or British Columbian coasts, such a race of southern-breeding seals must have become sub-permanent; and, following the analogy of other rookery grounds, it is probable that the same animals tended each year to reoccupy the same, or nearly the same, breeding stations. It is probable that these southern-breeding families may have been directly connected with the larger northern-breeding race, and it is at least easy to see how they may have originated and been recruited from it. Females delayed from any cause, and giving birth to their young along the coast to the southward, must often be served by young males, and irregular and too early service may also occur in many instances in the case of young females, or of those barren since the previous year. In all such cases of too early service, it would be impossible for the female to reach the Pribyloff Islands in time for the birth of the young, owing to climatic causes. She would, no doubt, remain with the other seals till impelled by nature to seek the shore, and if in any particular year a considerable number of females collected together for breeding purposes, the males would doubtless soon find and follow them, and, if undisturbed, the family thus established might probably return to the same place again in the next ensuing year.

449. This reasonable explanation, at all events, accords with the facts ascertained, and, moreover, in itself appears to have so much force, that even apart from these facts, it would be admissible to predicate the occasional birth of young along the whole extent of coast frequented by

the fur-seal. It is further borne out by the actual existence of breeding rookeries situated along or near to the migration route of the fur-seal on the western side of the Pacific, on the Kurile Islands and on Robben Island. These occupy the same position relatively to the principal breeding places on the Commander Islands, which the former similar colonies on the North American coast must have held relatively to the Pribyloff Islands, and the survival of the southern colonies on the Asiatic side is directly due to the less persistent and less efficient hunting by the natives there.

450. This subject is in its nature closely related to the foregoing remarks on observed changes in habits. It also, however, connects itself with the general question of the origin of the regularly migratory habits assumed by the larger number of the fur-seals of the North Pacific, a question referred to under the head of migrations.

(Q.)—*Connection or Interchange of Seals between the Pribyloff and Commander Islands.*

451. It is frequently assumed that the fur-seals inhabiting the whole North Pacific may, from year to year, resort almost indifferently
80 to the Pribyloff or Commander Islands at the breeding season. Statements to this effect have been made by various authorities,* and, as already noted, the arrival, in 1890, of a number of fat hollus-chickie and adult males on Copper Island was accounted for by the Superintendent there on the hypothesis that they had migrated thither from the Pribyloff Islands, though in reality his knowledge merely warranted the statement that he did not know whence they came. It has often been claimed by persons interested in justifying the methods practised on the Pribyloff Islands, that the continued abundance of seals on the Commander Islands is not due to greater care there exercised, but that they have been reinforced by accessions from the Pribyloff Islands, induced by the operations of pelagic sealers. One writer, indeed, took occasion, as early as 1887, to forestall any adverse criticism which might be directed against the methods and results on the Pribyloff Islands and based on the diminution of seals there, by stating, in anticipation, that such decrease would have no meaning unless discussed in connection with an unknown but possible increase on the Commander Islands.†

452. When it is considered that for twenty years both groups of islands have been controlled by a single Company, whose employés were often transferred from island to island, it is remarkable that so little has been placed on record in regard to this particular question, especially in view of the importance evidently attached to it by the gentlemen connected with the Company whose statements have just been referred to. Though unable to speak from personal observations on this point, it is clear that the result of Mr. Elliott's investigation of the Pribyloff Islands led him to believe that an interrelation existed between the seals frequenting these islands and the Commander Islands, and that a familiarity with one group of the breeding islands was insufficient to enable a complete view of the problem to be arrived at.‡

* See Elliott, "Condition of Affairs in Alaska" (1875), p. 266; Miller, House of Representatives, Report No. 623, 44th Congress, 1st Session, p. 45; Buynitsky, House of Representatives, Report No. 3883, 50th Congress, 2nd Session, p. 16; Williams, ibid., pp. 77 and 78; Elliott, United States Census Report, pp. 69 and 157.

† "Fishery Industries of the United States," vol. ii, p. 361.

‡ See especially United States Census Report, p. 69.

453. The inquiries and observations now made, however, enable it to be shown that the fur-seals of the two sides of the North Pacific belong in the main to practically distinct migration-tracts, both of which are elsewhere traced out and described, and it is believed that while to a certain extent transfers of individual seals or of small groups occur, probably every year, between the Pribyloff and Commander tribes, that this is exceptional rather than normal. It is not believed that any voluntary or systematic movement of fur-seals takes place from one group of breeding islands to the other, but it is probable that a continued harassing of the seals upon one group might result in a course of years in a corresponding gradual accession to the other group.

454. There is no evidence whatever to show that any considerable branch of the seal tribe which has its winter home off the coast of British Columbia resorts in summer to the Commander Islands, whether voluntarily or led thither in pursuit of food-fishes, and inquiries along the Aleutian chain show that no regular migration route follows its direction, whether to the north or south of the islands. It is certain that the young seals in going southward from the Pribyloff Islands only rarely get drifted as far to the westward as the 172nd meridian of west longitude, while Attu Island, on the 173rd meridian east, is never visited by young seals, and therefore lies between the regular autumn migration-routes of the seals going from the Pribyloff and Commander Islands respectively.

455. The price obtained for skins from the Commander Islands has generally been somewhat lower than that for the Pribyloff skins, but this is believed to result rather from the less careful handling and preparation of the Commander Island skins than from any inherent inferiority. Under this belief, the Alaska Commercial Company at one time, in 1876, sent Mr. D. Webster, their most experienced foreman, to the Commander Islands, to introduce better modes of treating the skins there. M. Grebnitsky, however, states that there is some actual general difference in the skins, such as to enable them to be distinguished by an expert, and that he is informed that the Commander Island skins are more difficult to "unhair" in dressing. Snegiloff, the Aleut foreman in charge of the Behring Island rookeries, who had also been on the Pribyloff Islands for some years, stated that he had observed that in both sexes the seals on the Pribyloff Islands were somewhat shorter and stouter than on the Commander Islands, and that the Pribyloff seals have thicker fur and shorter hair on the belly. This he
81 attributed to the circumstance that the seals stay longer ashore on the Pribyloff Islands. He said further, that on the Commander Islands the females are larger, and the mature males, or "sea-catchie," often become nearly white about the manes with age. He added that on Robben Island, in Okotsk Sea, the seals have still longer and thicker hair than on the Commander Islands.

456. As there is a considerable range of individual diversity, particularly in colouration, among the seals of any single locality, it would require much longer and more detailed examination than we ourselves were able to make, to verify these statements; but it appears to be probable that there is actually a slight general varietal difference as between the tribes frequenting the two principal groups of breeding islands, whether this is due to causes such as those above referred to or other circumstances. The amount of interconnection between the two groups is doubtless, however, sufficient to prevent any very striking or permanent peculiarities even of a varietal rank to grow up.

457. Some evidence not without importance in this connection is afforded by a comparison of the diagrams elsewhere given and representing the number of seals killed each year on the two groups of islands. Though affected by other causes as well, this number may be taken in a very general way as a record of the state of the rookeries as a whole, and the correspondence of the lines in the two diagrams is thus significant of connection or of co-operating causes.

(R.)—*Conditions affecting the Sea-otter and Sea-cow, contrasted with those affecting the Fur-seal.*

458. It has often, but incorrectly, been stated that the fur-seal of the North Pacific is in danger of "extermination" if measures be not taken to preserve it. The question is, however, not one of extermination, if by that term the extinction of the species is meant. The breeding Colonies of the analogous species in the Southern Hemisphere, once exploited and harried in every conceivable way, and without law or hindrance of any kind for over fifty years, chiefly by New England vessels, have, in no known instance, been absolutely destroyed. Long before the point of extermination is reached the killing of the seals, by whatever method practised, ceases to pay. Extermination is financially impossible, and therefore need not be feared. This is well enough understood by those best informed on the subject, and it is no sentimental dread of the extinction of a species which appeals to the imagination of the persons immediately interested in the breeding islands, but rather the practical destruction of their profitable monopoly of the sealing business of the North Pacific. Depletion, or great reduction in numbers, together with changes in habits of life, such as have been already indicated, are sure to be the result of continuous indiscriminate and unrestricted slaughter and hunting of the fur-seal, but not extermination. To precisely what point the diminution in numbers of the fur-seal might go before the increased average price of the skins ceased to compensate for the reduced aggregate number taken, it is impossible to say, but that such a point would eventually be reached is proved by all experience. This experiment, however, it is hoped, is one which need not be tried, for, as already made apparent, the fur-seal, by the nature of its life and habits, offers peculiar facilities for the exercise of a rational protection under which it may remain a source of profit to the hunter, while at the same time affording a continuous yield of skins intrinsically valuable.

459. From this point of view, the sea-otter (*Enhydra marina*) is an interesting case in point. This animal has played a prominent part in the discovery and history of the North Pacific. Its skin was highly valued long before that of the fur-seal was considered of any worth, and owing to its intrinsic value as an article of dress, its cost has continued to increase in a greater or less degree with its increasing scarcity, so that at the present time skins of the first quality are worth in London 700 to 1,000 dollars each. Surely, if it were possible to exterminate a fur-bearing animal of this kind, the sea-otter should long ago have met with that fate, yet it has been hunted for more than a hundred years, and is still a chief object of pursuit of many hundreds of natives.

460. Originally, this animal frequented a large part of the west coast of North America, together with the east coast of Asia, and all parts of the Aleutian, Pribyloff, Commander, and other islands. Its limits have now been much reduced, so that it is rarely found on the coast of British Columbia or anywhere to the south of Sitka, and has

altogether disappeared from the Pribyloff Islands, while on the Asiatic coast it has similarly ceased to be a matter of commercial interest in the Kurile Island chain. Although in the early part of the present century it was taken by thousands in certain localities, a few hundreds
82 are now considered an excellent catch for a considerable district.

It is to be remembered that the diminution of the sea-otter has been the result solely of operations conducted from the shore. In the old days the otter was clubbed, speared, or shot on the beaches, and afterwards from stages or from canoes close along the rocks and beaches.

461. The sea-otter possesses, however, one important advantage over the fur-seal in the nature of its procreation. The young are born at all seasons of the year and not simultaneously, and it is not necessary for this animal to resort in large numbers to particular breeding places, or to remain on or about such places for any considerable time. Its disadvantages as compared with the fur-seal are that it is not properly a pelagic animal feeding upon migratory fishes, but, on the contrary, subsists chiefly upon sea-urchins, molluscs, and other such creatures, which are only to be obtained in the immediate vicinity of the shores and their adjoining rocky patches and kelp beds.

462. As a result of its diminishing numbers, and the greater activity of the hunters, it has within historic times not only greatly increased in wariness, but has also very markedly changed its habits in directions similar to those in which a change has already become observable in the case of the fur-seal. In earlier years, it frequented the rocky shores, and was frequently found on the land, forming in some instances veritable colonies or "rookeries," comparable in some respects with those of the fur-seal. The young in those days were probably always born on shore, and it seems further probable, though not proven, that many of the so-called "kitchen middens" of the Aleutian Islands, composed almost entirely of the shells of *echinus*, and attributed by Dall to the pre-historic Aleuts, really owe their origin to such pre-historic sea-otter colonies. At the present time, it has become an event of extreme rarity to see a sea-otter anywhere on those shores, and, so far as the natives who spend their lives in hunting the animal can ascertain, the young are now almost always brought forth on floating masses of kelp.

463. The sea-otter, in fact, appears, as the result of persistent hunting and of the efforts and instinct to elude pursuit, to have reached a practically irreducible minimum, at which it is likely to remain unchanged unless new factors enter into the problem.

464. The non-pelagic character of the sea-otter, however, renders its protection a matter of comparative facility as contrasted with the fur-seal. A strict preservation, for instance, on the Sannakh Islands, which still constitute one of its remaining favourite haunts, would, without doubt, result within a few years in this group being restocked with an abundance of sea-otters.

465. Probably, the only remaining notable colony (or rookery, as it is called from analogy with the breeding places of the fur-seal) is that which is now strictly preserved by the Russian Government on the north-west point of Copper Island, of the Commander group. The sea-otters are reported by the Superintendent of Copper Island as increasing here from year to year, though a limited number is allowed to be taken by the natives each year, and though the natives are permitted to shoot, during the winter and in the absence of the fur-seals, any sea-otters found to the south of Matveya Point on the east coast, and a designated point somewhat further to the southward on the west coast. To the northward of the line thus defined, no shooting is at any time allowed

for any purpose whatever. This reserved area thus comprises about five miles of the northern end of Copper Island, with Sulkovsky Point and the Bobroti rocks and reefs lying off this point. Here the sea-otters are taken at designated times and under Government supervision in twine nets, except in certain years in which the natives get a permit to make a drive of otters upon the rocks, and kill them there with clubs like the fur-seals. This was allowed in 1890, and twenty sea-otters were got in the drive, though more might have been secured but for some mistakes which occurred during the operation. One hundred and eighty sea-otter skins in all were obtained from Copper Island during the year 1890.

466. Vigilance is required in guarding this sea-otter colony from raids, and it is said that in 1887 or 1888 Captain Snow, in the schooner "Nemo," from Yokohama, and flying the British flag, attempted to raid the place, but was fired at and driven off. Snow was reported wounded, and two Japanese sailors killed. Since this time no raids have been attempted here.

467. Near Cape Lopatka, the southern extreme of Kamschatka, a sea-otter colony or rookery existed till recent years, but it was raided and destroyed by vessels from San Francisco between 1880 and 1882. There is also stated to have been a similar colony at Pirat, or Yellow Cape, not far from the last. An effort was made to protect this by stationing a number of Aleuts at the place to guard it, but many of these people died, and the remainder were withdrawn at their own request, after which the sea-otter colony was raided and destroyed.

83 468. Some attempt has also been made by the United States Government to protect the sea-otter. Section 1956 of the Revised Statutes of the United States provides that no person shall, without the consent of the Secretary of the Treasury, kill any otter, mink, marten, sable, or fur-seal, or other fur-bearing animal, within the limits of Alaska territory, or in the waters thereof. This is further explained by a Treasury Department Notice, dated 21st April, 1879, which reads as follows:

No fur-bearing animals will, therefore, be allowed to be killed by persons other than the natives, within the limits of Alaska territory, or in the waters thereof, except fur-seals taken by the Alaska Commercial Company in pursuance of their lease. The use of fire-arms by the natives in killing other than during the months of May, June, July, August, and September, is hereby prohibited. No vessel will be allowed to anchor in the well-known otter-killing grounds except those which may carry parties of natives to and from such killing grounds; and it will be the duty of the officers of the United States who may be in that locality to take all proper measures to enforce all the pains and penalties of the law against persons found guilty of a violation thereof. White men lawfully married to natives, and residing within the territory, are considered natives within the meaning of this Order.

469. Inquiries at Ounalaska, however, show that no attempt had been made to enforce the law against the killing of fur-seals by the Aleuts in that vicinity till 1890, when instructions were received that it must be enforced, although no means were provided for its enforcement. The law against the killing of sea-otter and the ruling as to the months in which fire-arms shall be prohibited in hunting this animal is also, as a matter of fact, inoperative. The prohibited months include all those in which it is practically possible to hunt the sea-otter, and it is well understood that if the Aleuts of the Aleutian Islands were interfered with in this, their only means of obtaining a living, they must either suffer great hardships, or their support must be undertaken by the Government.

470. The sole instance of the actual extermination of an animal of the North Pacific within historic times, and one of the very short list of such cases of extermination the world over, is that of the Rhytina or Steller's sea-cow (*Rhytina Stelleri*). It is instructive to allude to this instance, because it becomes obvious that it was entirely owing to the great differences in habits and the very restricted range of the animal, as compared with the fur-seal, that its extermination became possible.

471. This sea cow or manatee was found in great numbers on Behring Island, and to some extent also on Copper Island, at the time of the discovery of these islands in 1741, but scarcely, if at all, elsewhere; though Nordenskiöld conjectures that it may within historic times have also occassionally visited the Kamschatkan coast.

472. It was a large, slow, clumsy, and incautious animal, which fed chiefly along the shores upon marine algæ; and being found easy of capture and good for food was persistently attacked by the early Russian navigators, who often visited Behring Island for the sole purpose of laying in a stock of its flesh. From the accounts of these voyages, it seems first to have disappeared from Copper Island, and subsequently, about 1768, less than thirty years after the discovery of the islands, it became extinct, also on Behring Island.*

473. It is stated that Brandt expresses the belief that the Rhytina formerly, and in pre historic times, not only frequented the coast of Kamschatka, but extended also as far as the coasts of China and the northern islands of the Japanese group, and to the western islands of the Aleutian chain. It thus appears to have already been naturally verging towards extinction before it was at all pursued by man. In a paper read before the Russian Imperial Geographical Society in March 1884, Dr. Dibofsky expresses a similar opinion. Mr. F. W. True writes as follows respecting the causes of its extinction: "The most generally accepted notion is that the rate of capture much exceeded that of the increase of the animal, and that extinction followed as a matter of course. Nordenskiöld, however, and in a certain way Brandt, also avows his belief that the sea-cow had gotten out of harmony with its environment many years before the Russians discovered it, and that its extermination would have occurred within a comparatively short time without the intervention of man. The fact that in Steller's time the range of the animal was much circumscribed seems to give weight to the latter view." †

84 (S.)—*Breeding Places and Resorts of the Fur-seal on the Western Side of the North Pacific.*

474. The pursuit of the fur-seal on the western or Asiatic portion of the North Pacific, affords much evidence very directly affecting the conditions and prospects of the seal fishery in the eastern waters of that ocean, altogether apart from the question as to how far the territorial Powers of these Asiatic waters, viz., Russia, Japan, and China, may desire to participate in any general regulations tending to the preservation of so old-established, important, and useful an industry.

* Baron Nordenskiöld found some reason to believe that a single individual of the sea-cow was seen as late as the year 1854, but Dr. L. Stejneger, first in the "Proceedings of the United States National Museum," vol. vii, 1884, p. 181, and at later dates in the "American Naturalist," vol. xxi, p. 1047, and "American Geographical Society Bulletin," No. 4, 1886, has advanced strong reasons to show that the animal actually became extinct in 1768.

† "Fishery Industries of the United States," vol. i, p. 135. See also Nordenskiöld's "Voyage of the Vega," vol. ii.

475. We have been careful to collect and collate all the information possible on the growth of the industry on the Asiatic coasts of the Pacific, because it has for the most part been left untouched by those who have written on the subject. Clark* simply dismisses the subject with the brief remark: "The seals taken by the Japanese are those migrating from the Commander group, the number taken averaging 4,000 annually, though some years as many as 11,000 are taken." Messrs. Lampson† merely report: "The supply from this source (Japan) has varied very much of late years, amounting sometimes to 15,000 skins a-year, at others only 5,000. Last year (1887) stringent prohibitory laws were passed by the Japanese Government, and very few skins have come forward." Very little else has been published on the subject by any one of authority. But in addition to the results of much correspondence, official and private, and gathering together of scattered references, we have had the advantage of making the acquaintance of men experienced in seal-hunting and in seal localities in this portion of the Pacific, and have thus been enabled to put together a sufficient body of information to convey sufficient accounts of the rise and progress of the sealing industry in these waters.

476. Among the points of special interest to our present purpose are:—the growth of the industry; the similarity of conditions prevailing on this side of the Pacific; the dissimilar circumstance of the absence of pelagic sealing; the very destructive effect of raids upon breeding rookeries; and the attempts at regulation and control by both the Japanese and Russian Governments.

477. After the middle of the eighteenth century, British vessels, especially under the auspices of the East India Company, extended their voyages from Bombay and Calcutta or Macao to the coast of Kamschatka, and along the Aleutian Islands into Behring Sea, and as far as the north-west coast of America, in search of furs. Such voyages were made in 1780 and in 1786–87. These English traders at once encountered the claims of the Russians and the Spaniards to the sole right to navigate and trade in those seas, a claim then successfully contested and tacitly or explicitly ignored about 100 years before the officials of a territory belonging to the United States seized British vessels for engaging in similar enterprises in those waters.

478. The furs thus obtained by the British were taken to the Chinese market. The Russians were quick to notice this, and in due course obtained from the Chinese authorities an interdict against the landing in China of any furs from the islands and shores of the Eastern Pacific. In the event this proved but a partial restriction so far as the English were concerned, for they commenced at once to turn their attention to bringing to the Canton market the fur-seal of the southern seas, and this highly profitable trade thus started flourished from about the year 1793 until 1835.

479. Meanwhile, however, in the Northern Pacific the Russians were active. In 1799 a charter was granted by the Czar to the Russian-American Company, giving them control over all the coasts of America on the Pacific north of latitude 55° north, and this Company, extending its operations under Baranoff and other leaders, acquired a wide dominion. In the course of a few years, English and American vessels established almost a monopoly in the supply of goods of all sorts to the Russians and their natives, the return trade being mostly in furs for the Canton

*Parliamentary Paper [C. 6131], p. 178.
†House of Representatives, 50th Congress, 2nd Session, Report No. 3883, p. 114.

market. In 1811 the firm of Astor, of New York, made a special contract to supply the Russian Company with provisions, payment being taken in furs to be sold in Canton. This enterprise took the name of the Pacific Fur Company, and the two Companies undertook, besides this mutual trade, to prevent the natives obtaining any liquor, to assist each other against all interlopers and smugglers, and to respect each other's hunting areas. In the following year these rights and undertakings were bought up by the North-West Fur Company, of which the headquarters were in Montreal.

480. Thus, the English were in the North Pacific taking seal-skins from the south seas to Canton, and also trading generally in furs, right away to that portion of the North Pacific which subsequently became known as Behring Sea, on a well-established basis, by the beginning of the present century.

481. In connection with this part of the North Pacific, it may also be borne in mind that about the year 1840 whaling began to be extensively practised. In 1840 to 1842 the whaling fleet frequented the Kadiak ground, where many right whales were taken. In 1846, the Japan Sea was found to be a good whaling ground, from which that part of the Pacific near Kamschatka was next reached, and soon after Okotsk Sea. In 1848, the first whaler entered the Arctic Ocean, and thereafter not only Behring Sea, but also this further ocean, has been regularly frequented by whalers, the bow-head whale chiefly being taken in the extreme north. The industry has gradually declined, in consequence of the lessened number of whales; but between 1849 and 1860, there were about 300 vessels under the United States flag, besides British, French, Oldenburg, Danish, and other vessels. Many of the British vessels came from Hobart Town and other places in Australasia.

482. But the fur-seal of the North Pacific remained in great measure a monopoly of the Russians until towards the middle of the nineteenth century, and then, by reason of its becoming a well-ascertained fact that the supply of seal-skins from the Southern Ocean had practically ceased, English and other nations also turned their attention to the supply of seal-skins from the North Pacific.

483. It is necessary to bear in mind that the commercial importance of the skins of the fur-seal of the North Pacific is thus of recent origin. In the well-known "Penny Cyclopædia," published so lately as 1842, the seal is described as follows, and it is stated that no market value is attached to the skins of the adult:

Arctocephalus ursinus.—Islands on the north-west point of America, Kamschatka, and the Kurile Islands. This is the *Otaria ursina* of Dezmaest; *Phoca ursina* of Linnæus, &c. When these migratory seals appear off Kamschatka and the Kuriles early in the spring they are in high condition, and the females are pregnant. They remain on or about the shore for two months, during which the females bring forth. They are polygamous, and live in families, every male being surrounded by a crowd of females (from fifty to eighty), whom he guards with the greatest jealousy. These families each, including the young, amounting to 100 to 120, live separate, though they crowd the shore, and that to such an extent on the islands off the north-west point of America, that it is said they oblige the traveller to quit it, and scale the neighbouring rocks. Both male and female are very affectionate to their young, and fierce in their defence; but the males are often tyranically cruel to the females, which are very submissive. . . . The skin, which is very thick, is covered with hair. . . . . There is a very soft, brownish-red wool close to the skins. . . . . The skins of the young are highly prized for clothing.

484. Upon the Commander Islands, until the year 1868, nothing was thought worthy of capture except the grey-pup seals, while on the Pribyloff Islands and along the coasts of North-West America the skins of the fur-seal were considered as hardly worth the taking. For instance,

in 1825 skins were bartered by the Russian Government in the Sandwich Islands at an average rate of 1 dol. 75 c. (7*s.*); in China, at Kiatcha, at from 1 dollar (4*s.*) to 1 dol. 40 c. (6*s.*); while the prices given by the Hudson's Bay Company at Port Simpson were, so lately as 1850, only 1 dol. 50 c. (6*s.*) per skin.

485. A few years later, however, more attention was given to the northern fur-seal, and we find vessels from all quarters, including Honolulu, cruizing round the North Pacific, endeavouring to trade for, or take, seal-skins. Seal-hunters followed in their track, bringing with them the traditions and experiences of the south seas summed up in the idea of taking the fur-seal as and when it came ashore. Writing in 1870, Professor Dall describes the Harbour of Chichagoff, in Attu, as a notorious smuggling centre for furs.

Such was the general aspect of affairs by the middle of the present century in the North Pacific.

486. In the more westerly portion of that ocean, from a variety of sources, and especially from the special report supplied to us by Mr. de Bunsen from the British Legation at Tôkiô, and a memorandum obtained from his Government by Viscount Kawazé, Japanese Minister in London, we have a tolerably complete account of the fur-seal fishery on the coasts of Japan and the Kurile Islands.

487. The seal fishery is an old-established industry in Japan, and particulars are on record dating back to the middle of the last century. The skins were obtained about 1750 and 1760 from Horomoshir, Makaruru, Shimsir, and Urup by the natives of Itrup and Rashua, using arrows, harpoons, and nets.

In 1800, we read of a regular sealing establishment being set up in Itrup, and carried on for years with success.

86 The seal-skins were usually bartered at Nagasaki to the Chinese. The Government in these years purchased the skins from the natives, at the fixed rates of 90 and 45 sen for the best and medium quality skins respectively.

During the succeeding years, Russian subjects gradually pushed southward down the Kurile group, and much competition and even conflict resulted in rival endeavours to secure seal-skins. At this period, the Russians began to send furs to the China market direct to Peking through the great mart established at Kiatch, in Eastern Siberia.

488. About the year 1865, the Japanese Government found itself forced to deal with the increasing numbers of foreign vessels—chiefly Russian, British, American, and Dutch—which began to visit their coasts, and frequent the bays and harbours in quest of marine products.

489. As early as 1869, the Japanese Colonial Department set up a branch establishment in the Island of Itrup, with the special object of carrying out the measures established to protect the Japanese coast fishing against foreigners. The old seal-skin regulations were revived and the Government price trebled. In 1873, Commissions were set up specially to prevent seal poaching and sale of seal-skins by foreigners. Much trouble was occasioned by the foreign vessels, which usually claimed the right to remain in the bays and harbours, on the plea of stress of weather or need for wood and water. This necessitated a man-of-war being sent up, and, ultimately, a special cruizer was detailed to the Kurile Islands for the sealing season, viz., May to October.

490. In May 1874, the Government issued regulations to control the fishery around the Hokkaido (Yezo) Islands, claiming jurisdiction within a limit of two and a-half miles from the shore, and stating "if any foreigners be found fishing within the above-mentioned limits, they

shall be arrested in as peaceful a manner as possible and sent to Hakodate, accompanied by guards, and delivered to the Consul of the country of their nationality." During these years, foreign vessels were frequently encountered engaged in sealing. Besides many vessels from the United States, a Danish vessel, the "Mattée," and others, are mentioned.

In 1875, on Itrup, the Russians actually commenced putting up huts, as did the Americans at a place called Maroko, for the purpose of killing seals. They were, however, arrested and sent to Hakodate.

491. The head-quarters of the Protection Establishment originally set up on Itrup Island were afterwards transferred to Nemuro, with branches on Oonebetsu, Nanneho, and Toshimori. In 1876, in consequence of the agreements come to with Russia in 1874 concerning the Kurile Islands, new regulations were issued, prohibiting fishing for seals by foreign vessels within gunshot of the Hokkaido shores; new branch offices established on Shikotan and elsewhere, and measures were taken by proclamation and otherwise to notify foreign vessels that sealing was prohibited. Endeavours were also made to improve the native methods of preparing the seal-skins. In addition to this, special regulations as to the methods of slaughter were issued, deprecating the use of fire-arms and the killing of "pups," limiting the number of seals to be taken along the coast, and establishing a close season between the months of May and November in the territorial waters. Special inquiries were also to be instituted into the facts of seal life.

492. The Japanese were thus inclined to adopt wise Regulations, but foreigners, and especially Americans, were far more reckless, and continued to maraud along the shores and to use fire-arms, eagerly seeking the profits of to-day, but ignoring all risks of depletion on the morrow. In 1877, 1878, and 1879, the Japanese made establishments successively in Kunashir, Iriribush, and others of the less inhabited islands, to secure for themselves the fur-seal industry. But foreigners followed them closely, and by the year 1880 or 1881 serious apprehensions existed that the seals were hopelessly diminished in numbers. The Japanese Report states: "The foreigners do not in the least care about the decrease of breeding or the extermination of the species; they freely use their guns in hunting, and, as the result, they kill the greatest number. Thus, we are obliged to throw aside the old instruments, such as clubs, bows and arrows, and gaffs, and to adopt the gun, as it would be most foolish to keep to the old system, which left others to make the greatest gain. Thus, the use of guns is the main cause of the present decrease."

493. Over all these years, and up to the present, seals were known to breed in numbers on at least three points on the Kurile Islands, viz., the Srednoi Rocks, off the Island of Ushishir, on Raikoko Island, and on the Mushia Rocks. Indeed, in 1881, quite an impetus was given to sealing by the unexpected discovery of a small rookery on the Srednoi Rocks, holding 20,000 to 25,000 seals. 5,000 skins were taken there in that one year.

87 494. Seals were known to frequent the adjoining ocean in large numbers from November to May, especially off the coast of Japan between Inabosaki and the east part of Yezo, and it was reported that during the remainder of the year the seals travelled away northwards into the Okotsk and Behring Seas to breed on Robben Island and the Commander Islands. They were never molested out at sea.

495. The native fishermen, in open boats, along the Nambu and Yezo coasts north of Inabosaki, habitually take the seals by spearing, by

shooting them with barbed arrows, and in nets. In some places, a fur covering for the head and neck enabled the hunters to approach close to the seals. The annual catch of from 2,000 to 3,000 skins is disposed of to Chinese buyers in Hakodate. In the autumn, they sometimes take 2,000 to 2,500 grey pups in nets. But it has always been customary, whenever a rookery was discovered, especially along the Kurile Islands, for larger vessels to proceed thither and take all seals that could be killed on shore by clubbing.

496. The Japanese Agricultural Department states that the fur-seal appears to be reared on the rocky coasts, and caught at a distance of not more than one nautical mile from the shore, but that they are generally found on the beaches and clubbed there.

497. In recent years good records have been kept, especially of vessels under foreign flags engaged in sealing from Japan, but it is not so certain that all Japanese vessels so employed are always registered

498. The following are the figures, about one-half of the total being under the British flag:

Year.	Number of Foreign Vessels engaged in Sealing.	Year.	Number of Foreign Vessels engaged in Sealing.
1880	8	1886	7
1881	9	1887	6
1882	18	1888	5
1883	15	1889	5
1884	14	1890	4
1885	11	1891	3

499. The rapid increase in numbers of vessels employed from 1880 up to 1884 was due to the discovery of the rookeries on the Kurile Islands. But these were speedily exhausted by indiscriminate slaughter, and these sealing-vessels almost confined their operations to raids in and around Robben Island and the Commander Islands, especially during the temporary absence of the guard-ships. Several schooners came from America every autumn for sealing purposes, but not one of these vessels was ever employed in "pelagic" sealing.

500. It is certain that these schooners could not have been worked at a profit unless they had taken ten times as many skins as are reported to have been landed at Hakodate and Yokohama. But it is almost impossible to form a correct estimate of the total catch, because the vessels sometimes bring to Japanese ports skins of seals raided from the Russian shores, and sometimes ship seal-skins thus obtained to Europe or China without bringing them into a Japanese port, even if only for transhipment.

501. Of the extensive and wasteful slaughter on the breeding places included in the territorial jurisdiction of Japan, many interesting though incomplete records were obtained. Captain Miner, of Seattle, a particularly well-informed sealer, had frequently been to these rookeries. The Alaska Commercial Company, he stated, had obtained seals from Ushishir and Srednoi in 1882–83. In 1884, he heard from the natives of a rookery at Kikaka, a small island near Mattoo. There he secured 4,500 skins, but news of this having become public there were next year six schooners at work there, and the few seals left were killed off by the Japanese Marine Products Company which now leases the island.

502. Captain Snow, the well-known sealer of Yokohama, took in one year (1881) 7,000 seals from Srednoi Rock alone. Next year he found none there. The natives of Urup Island always had seal-skins to sell, and this led to the Alaska Commercial Company and the schooners searching the neighbourhood, but the island being low and behind others was very difficult to find. In the following year (1887), he secured 2,000 seals on Ushishir Island. Such are some of the examples of the wholesale slaughter of seal on these smaller, but prolific, rookeries.

88 503. The Japanese Government was not slow to appreciate the gravity of the case, and the Agricultural Department was prompt to report that the promising annual catch had suddenly decreased because of this indiscriminate slaughter on shore.

504. An Imperial Decree was issued on the 23rd May, 1884, forbidding the hunting of the fur-seal in Japanese waters except by persons with a special permit. This was supplemented on the 16th December, 1886, by Regulations issued by the Imperial authorities under the immediate supervision of the Governor-General of Hakodate.

505. These Regulations, in brief, enacted:

(i.) No fur-seal may be taken except between the 15th April and the 31st October.

(ii.) No fur-seal may be taken outside a defined area.

(iii.) This area is divided into three portions, in only one of which is seal-hunting permitted in any given year, the other two divisions benefiting by two years of rest.

(iv.) All vessels engaged must be specially licensed, and conform to special regulations, and fly a special flag.

(v.) All skins brought to market must be stamped at certain ports.

There is no specified limit to the numbers of licences, but the issuing authorities would exercise discretion in the matter.

506. The Nipon Marine Products Company, of Hakodate, with a capital of 125,000*l.*, was formed to carry on whaling and the capture of sea-otter and fur-seals. The Company purchased three schooners of about 70 tons each, manned by crews of twenty-five men, for the purpose of killing seals on these hauling-grounds, these being the only vessels which have as yet taken out the necessary licences. These three vessels were reported to have taken sixty seals between them in 1891.

507. Last year three "foreign" vessels fitted out in Yokohama, but their destination was to the north of the Japanese waters; and two, the "Arctic" and the "Mystery," were captured in the late autumn by the Russian gun-boat "Aleut" raiding Robben Island, having killed 1,500 seals.

508. It would appear that the somewhat elaborate Regulations set up by the Japanese Government in 1886 have been as yet practically inoperative. It is reported that the Government vessel, the "Kaimonkan," detailed to enforce these Regulations in 1891, as a matter of fact never left her station at Nemuro. It seems probable, however, that, with the exception of the local shore fishermen, no one else has been inclined to seek for seals among these Japanese islands since the rookeries were depleted in 1881–82.

509. Apart from the Commander Islands, the most important breeding place of the fur-seal in the Western Pacific at the present time is undoubtedly Robben Reef or Island, named Tucelen or Seal Island on Russian charts, lying off Cape Patience, on the east coast of Saghalien Island, in Okotsk Sea. This is a low, flat, rocky islet, destitute of haven or convenient anchorage for vessels, about 1,800 feet only in length and not more than 50 feet in greatest height, surrounded by

shingly and rocky beaches. What little is known of its history is perhaps particularly interesting, in showing how persistently the fur-seal may continue to resort to its favourite haunts in the face of slaughter and disturbance provided these are not actually continuous.

When first discovered, it is reported that the seals frequented all parts of the periphery of the little island, but especially the east and north-east sides; at present, in reduced numbers, they congregate chiefly on the south-easterly beach.

510. According to Mr. D. Webster, now employed on the Pribyloff Islands by the North American Commercial Company, Robben Island was cleared of fur-seals by raiding vessels in 1851–53, and was thereafter not again visited by sealers till he himself went there in 1870. The slaughter here referred to is no doubt the same with that mentioned in greater detail by Scammon, who says, however, that it occurred in the "midst of the Crimean War" (probably, therefore, in 1854 or 1855), and was carried out by a clipper bark sent there by "an enterprising firm in New London, Connecticut." He gives some further particulars of this raid upon Russian territory, and adds that a valuable cargo of skins was obtained, which brought an unusually high price in the European market because the regular Russian supply was cut off by the war.*

Webster thinks that after the above date the seals gradually increased again in number, but nothing is known of the conditions till he himself visited Robben Island in 1870. Webster did not name the vessel in which he visited the reef, but it was probably either the "Mauna Loa" or "John Bright," as these two vessels, nominally engaged in whaling, are known, from information afterwards obtained from M. Kluge on Copper Island, to have raided Robben Island in that year. Webster, at this time, according to his own account, assisted in taking 15,000 skins, though Kluge's estimate of the number taken was 10,000. Webster further informed us that he had hoisted the United States flag on the island, and though warned that it was Russian territory by a vessel of that nationality, he paid no heed. A little later, however, a Russian Government vessel appeared, and the officer in command ordered him to leave within twenty days. He had already sent most of the skins to San Francisco, probably on one of the vessels above mentioned, but continued killing until he had taken about 2,000 more skins.

89

511. In 1871, this island, with the Commander Islands, was leased to Messrs. Hutchinson, Kohl, Phillipeus, and Co., who transferred their rights to the Alaska Commercial Company. Mr. Kluge went there in the same year in the interests of the lessees, and found that, in consequence of the raid in 1870, there were not over 2,000 seals to be found on the entire island. The island was watched in that year, but no seals were killed. A few may have been killed in 1872, though, if so, the number is not known; but from 1873 to 1878 rather more than 2,000 skins were on the average taken annually by the Company from this one small reef.

512. About the year 1879, schooners sailing from Japan began to frequent the island, and were in the habit of raiding it in the autumn, after the guardians had been withdrawn. In 1881, the Company's agent remained on the island as late as the 5th November, at which date five or six Japanese schooners were still hovering about, looking for a chance to land. The Dutch sealer "Otsego" was warned off by the Company's trading steamer "Alexander." In consequence of such raids, the number of seals declined from year to year.

* "Marine Mammalia," pp. 149 to 151.

513. Probably discouraged by the cost and difficulty of protecting the island, and in order to prevent competition in the sale of skins, the Company in 1883 made a barbarous attempt to extirpate the seals on it. A full account of this attempt is given in the deposition of C. A. Lundberg,* who arrived at Robben Island in the schooner "North Star" from Yokohama, and found the mate of the schooner "Leon," a vessel in the employ of the Alaska Commercial Company, living on the island with about fifteen Aleuts. Lundberg found a great mass of dead and decaying seals upon the shore, which had been killed by these men, as they said, in order to "keep any of those Yokohama fellows from getting anything this year." The crews of the "North Star" and another schooner, the "Helene," then set to work to remove the carcasses, which included those of many females and young, and proved to number between 9,000 and 10,000. In the process, they managed to pick out some 300 skins in good condition. "There were thousands of seals in the water, but they would not pull out on the beach on account of the stench and filth. We washed the beach as clean as we could, and turned the gravel over as far as we were able. Shortly a heavy gale came on, which washed the beach quite clean again, and the seals then began to pull out."

514. We were also informed that Captain Hansen, afterwards master of the German schooner "Adele," was present on this occasion. Captain Miner, an experienced sealing-master of Seattle, also visited the island in the same year, and described to us the great heap of carcasses which he found on the island, and the manner in which the skins had been slashed in order to render them useless.

515. In 1884, according to Mr. Kluge, the Russian Government stationed a steam launch at the island for its protection, and in the same year four schooners, including the German schooner "Helene," were captured there by the Russian man-of-war "Rasbonik."

516. In 1885, the launch was replaced by a force of twenty Cossacks, but these were withdrawn in September, after which raiding schooners again appeared. In that year, there were not more than 7,000 or 8,000 seals in all upon the island. From 1885 to 1890, no skins were taken by the Company from the island, but in the last-mentioned year 1,452 skins were taken. The guard was, however, removed from the island between the 12th and the 15th October, and after that date the island was raided by schooners, one of these, reported as hailing from Japan, and said to fly the United States flag, being the chief offender. These schooners must have obtained at least 4,700 skins, for when the island was revisited early in 1891, that number of carcasses was found upon it, and these were buried in order to avoid the effect which their presence might have in preventing seals from again landing.

517. In consequence of this heavy slaughter, but 520 skins were obtained by the Company from the island in 1891, and Captain Brandt, of the Russian gun-boat "Aleut," estimates the whole number of seals present on the island at this date at about 16,000. In October 1891,
90 Captain Brandt returned to the island in the "Aleut" when not expected there, and captured two raiding vessels from Yokohama, sailing under the British flag, and at the time in possession of 1,500 fur-seal skins.

Captain Blair, of the Company's schooner "Leon," further informed us that there were at present about twenty-five females to each adult male on the islands, a proportion of males which he, from long experience of the sealing industry, considers to be far too small.

* Parliamentary Paper [C.—6131], p. 363.

One of the difficulties found in guarding this island is due to its small size, in consequence of which the mere presence of guardians on shore tends continually to disturb the seals.

518. Passing to the coast of Kamschatka, from various good authorities on the Commander Islands and at Petropaulovski, it was learnt that there is some reason to believe that a new breeding place of the fur-seal has been established near Cape Stolboi or Cape Kamschatka. Females with young pups have been seen off this part of the coast, and an attempt was made in 1890 to examine it in boats, but was frustrated by stormy weather.

519. At Cape Tshipunski, also on the Kamschatka coast, M. Grebnitsky, the Superintendent of the Commander Islands, stated that he saw breeding fur-seals in 1879 or 1880, though it had been ascertained in 1877 that there were no seals there. Subsequent to the time of M. Grebnitsky's visit, the incipient rookery was destroyed by hunters or by raiding schooners.

520. From the vicinity of Cape Kamschatka north-eastward to Baroness Korf Gulf, a stretch of coast exists which has been entirely uninhabited for many years, and about which very little is known. The former inhabitants were killed off by small-pox, according to information received in 1786.*

Karaginski Island lies off this part of the coast, and here it is reported that numbers of seals were seen in former years.

521. It seems certain that the killing and harassing of the seals which has been so actively carried on for the past ten years or more from the Japanese coast, along the Kurile Islands, has had the effect of causing these animals to wander further afield than before, and more or less instinctively to seek for new and secluded breeding places.

522. Thus, the Lieutenant-Governor of Petropaulovski, who is well acquainted with the northern coasts of the Okotsk Sea, informed us that up in the north, off the Ola River and in Tausk Bay, the natives have noticed the fur-seal since 1886, though not before, and that fishing-vessels in these waters occasionally secure one or two. It is also known that fur-seal occasionally haul out at various points, although at none are they known to breed. Captain Brandt, of the Russian gun-boat "Aleut," again has himself recorded as a new feature seeing several fur-seals off Point Povorotny, near Vladivostock, and states that seals are sometimes seen at Cape Seritoko.

523. The facts relating to the Asiatic coast of the North Pacific, outlined above, showing as they do that several outlying rocks and islands in various latitudes, and affected by somewhat diverse climatic conditions, have been or are resorted to by the fur-seal as breeding places, and that new places of resort may be chosen by that animal, go far to prove that it is to the continuously inhabited character of the Aleutian Islands, and other islands along the American coast, that the absence of such breeding places there at the present day must be generally attributed. This is fully borne out by the notes already given with respect to former breeding places on the Californian and British Columbian and Alaskan coasts, and may be adduced in favour of a belief that with proper protection new rookeries might not improbably be established in suitable places, provided there be no disturbance or slaughter by man.

524. This is particularly worthy of consideration in the case of the Aleutian Islands, where, in consequence of the now very small and

* Bancroft, however, gives this year as 1768, "History," vol. xxxiii, p. 164.

still decreasing number of natives, it would not be difficult to set apart reserves for this purpose, as well as for the propagation of the sea-otter. The greatest difficulty in the case of the fur-seal would doubtless be found in the matter of inducing the first colonization of such new rookery grounds, but as it has been shown that the smell of the formerly occupied rookeries is one of the chief—if not the chief—attraction to the first-arriving seals, and as this smell is inherent chiefly in the soil of these rookeries, it is perhaps not unworthy of consideration whether the transfer of portions of this seal-impregnated soil, and its scattering over suitable places—particularly such as lie near the migration-route of the seal—might not lead to their occupation. In any case, such reservations would soon be colonized by the more widely wandering sea-lions and hair-seals, and the security and increase of these would probably after a time have the effect of producing a
91 sense of safety which might induce the fur-seal to take up its abode there at the breeding season. The principal objection to experiments of this kind would be the cost of affording the necessary protection, but if such islands were also stocked with and preserved for the blue-fox, the sale of the skins of this animal might alone, in the course of a few years, be sufficient to cover a large part of this cost.

525. Similar measures would, of course, be also worthy of consideration in the case of various places on the shores of British Columbia, or on the Asiatic coasts of the Pacific.

II.—Natives of the Coasts of British Columbia and Alaska directly interested in Independent Sealing. Methods of Hunting, and Number taken.

526. The native peoples of the west coast of America directly interested in the capture of the fur-seal are the following:

1. Aleut.
2. Eskimo, or Innuit, including Kaniagmut, of Kadiak Island and vicinity, and Chaga-Chigmut, of Prince William Sound, with probably some other tribes of lesser importance.
3. The Tlinkit, or Koloshan tribes of South-eastern Alaska.
4. The Haida, of the Queen Charlotte Islands; with the Kaigani, of the southern extremity of the Alaskan coast-strip.
5. The Tshimsian, of the inner coast of Hecate Strait.
6. The Hailtzuk tribes, to the south of the last.
7. The Kwakiool tribes of the northern part of Vancouver Island.
8. The Aht, or Nootkan tribes, of the west coast of the same island, and including the linguistically-identical Makah, of Neah Bay and Cape Flattery.

527. All these people have known and hunted the fur-seal from time immemorial, and in all cases either within the limits of what has been referred to as the winter habitat of the seal, or along the course of its northward migration-route. So long as the breeding islands remained uninhabited by man, the seal was practically exempt from his attacks in its summer habitat.

528. The amount of the interest of these native peoples in this pursuit has naturally varied in accordance with changing circumstances, and has, in most cases, been notably stimulated by the higher prices which have ruled for skins within the last twenty years. Their aboriginal

modes of hunting the fur-seal are somewhat varied, including the spear, bow and arrow, net, and club; but in most cases the gun is now the weapon employed.

529. *Aleuts.*—The hunting of fur-seals by the Aleuts inhabiting the eastern part of the Aleutian chain has already been referred to in connection with the migrations of the seal. The Aleuts of Iliuluik Settlement at Unalaska, stated that they generally got twenty or thirty seals in the early part of the summer and when on their way north. They are engaged in hunting the sea-otter at this season, and take a stray seal if they find it. Such seals are generally got along the southern side of the islands, but the seal-hunting season proper is in the autumn. In hunting seals, these natives employ the same methods as in sea-otter hunting. They use a "bidarka," or light skin-boat, in which they sometimes go as far as 25 or 30 miles from land. The spear, launched by means of a throwing-stick, was formerly most employed, but is now being superseded by the gun loaded with buck-shot. They generally shoot from a distance of 40 or 50 yards, and have plenty of time to paddle up in the bidarka and get the seal before it sinks. The dead seal is taken either with the hand or by means of a gaff carried for the purpose. Grey pups always float when killed, being very fat. An old male, or a female over two years of age, generally sinks when shot, particularly in the autumn, when seals of these kinds are thin. A female with young may sink, but more slowly. These natives, however, affirm that they never lose a seal if killed. Mr. Dirks, now agent for the Alaska Commercial Company at Atka Island, states that when previously stationed at Sannakh Islands, he has seen the Aleuts there pursue and overtake fur-seals in their light bidarkas, a feat which would be impossible with any boat.

530. Nets were formerly employed by the Aleuts of Unalaska and neighbouring islands for the capture of sea-otter, fur-seal, and hair-seal. These are described as having been from 20 to 30 fathoms in length. Such nets were set about the rocks, generally a mile or so from shore. They are still used on the Sannakh Islands, but have elsewhere been practically abandoned in consequence of the increasing wariness of the sea-otter.

531. The fur-seals killed by the Aleuts afford practically the
92 the only flesh meat which they are, under ordinary circumstances, able to obtain, and, as food, are highly prized by them. In 1890, for the first time, the United States Government prohibited the killing of fur-seals by the Aleuts of the Aleutian Islands, but this rule has so far been practically inoperative, in consequence of the want of means for its enforcement.

532. The Aleutian Islands were originally thickly inhabited, and settlements existed on nearly all those of considerable size. Soon after the Russian discovery, measures were taken to concentrate the Aleuts in a few islands, where they might be more easily controlled. The decrease in number of inhabitants has since then been continuous, and the number of inhabited villages is now small. In the eastern part of the chain the following places are still inhabited, and to all of them the remarks above made, with special reference to Unalaska, are equally applicable. On Unalaska Island, Iliuluik, Makushin, Kashega, Tshernofsky; on Spiskin Island, Burka; on Akutan Island, Akutan; on Akun Island, Akun; and on Umnak Island, Nikolsky.

533. The most westerly of these villages is that on Umnak Island. The next permanently inhabited place is Nazan Bay, Atka Island, 210 miles further west, and beyond this there now exists but one permanent

settlement, that on Chichagoff Harbour, Attu Island, at a further distance of no less than 480 miles. The Aleuts resident at these places, however, during the summer months, hunt from island to island along almost the entire chain, with all parts of which they are consequently more or less familiar.

534. At Atka Island, fur-seals are occasionally seen. In former years, they sometimes were observed to pass on their way north between Atka and Amlia Islands, but never of late. Grey pups are not infrequently taken about Atka in November. The Aleuts here do not make a business of hunting the fur-seal at any time, but when seen kill them with sea-otter spears. The flesh is prized for food. At Attu grey pups are never seen, but larger seals are occasionally got. They are generally speared, as at Atka Island. The spear employed in both cases has a small detachable ivory or copper head, and is impelled by means of a throwing-stick. The bidarka is used in hunting by these as by the other Aleut tribes.

535. *Innuit.*—The Kaniagmut Innuit people, inhabiting Kadiak Island, kill a few fur-seals in the earlier part of the summer, when they are engaged in hunting the sea-otter. They employ the skin bidarka or kayak, and use an ivory-tipped arrow with detachable head, shot from a bow. The same style of weapon is used along the Aliaska peninsula, and is probably co-extensive with the limits of the Innuit peoples of this region. In Prince William Sound, the Chaga-Chigmut tribe formerly made a special business of the pursuit of the fur-seal, often getting, within recent years, as many as 200 skins in a season. In 1891, the number obtained was about fifty only.

536. *Tlinkit.*—To the eastward and southward of the Aleut and Innuit peoples, the skin boat is replaced by the wooden dug-out canoe, which, though comparatively rude, as made among the Tlinkit peoples, is nevertheless a serviceable craft, and with the Haida and other northern tribes of the coast of British Columbia, becomes perfected in construction, and assumes lines of almost ideal form.

537. In the neighbourhood of Sitka, the Indians systematically hunt the fur-seal in the spring and early summer. They form camps at suitable spots on the outer coast for this purpose, the favourite places being between Cross and Salisbury Sounds, particularly about Cape Edwards. In some years as many as 700 skins are got, but in 1891 about 300 only were obtained. Three or four Indians man a canoe, and when the weather is favourable start about two o'clock in the morning for the hunt. They continue paddling or sailing until near noon, and believe that they often get thus as far as sixty miles from the shore. They then hunt for six or seven hours before setting out on their return, and reach the land early the following morning. Such a trip is made about once a-week when the weather is fine, and the hunters consider themselves fortunate if they can make ten trips in all during the season.

538. The Indians here first saw schooners hunting off the coast about ten years ago, but heard of them before this. Some of these people are employed in sealing-schooners sailing from Sitka.

539. The seals were formerly killed with spears; rifles were afterwards employed to some extent, but in late years the gun, with buckshot, has been adopted by almost all. The Indians state that the seals sometimes sink when shot, the proportion thus lost being sometimes one, sometimes two, out of ten. One man informed us that he had in 1891 got nineteen skins and had lost four in addition, all of which he felt sure he killed.

540. The Tlinkit (Hanega tribe) of Klawak on Bucarelli Sound, Prince of Wales Island, are now mingled with some Indians of Kaigani (Haida) extraction. They have not in recent years hunted the fur-seal in spring or summer, being more remuneratively and less arduously employed at that season in salmon canneries, or at other work.
93 During the winter, however, most of the men hunt the fur-seal to a greater or less extent; a single hunter sometimes getting as many as twenty skins in a season. Here, five men often go together in a canoe, the canoes used being larger than those at Sitka. In the spring and early summer the seals are far off shore, but in the winter months they come close in, particularly the gray pups and yearlings. About two years ago, seals appeared in great numbers. In a good season, 200 or 300 skins are secured at Klawak, for which 2 dollars to 9 dollars is paid by the traders on the spot. The flesh is sometimes eaten, but not now so much as formerly, though the fat is still prized as food.

541. *Haida.*—In the northern part of the Queen Charlotte Islands (lying off the northern extreme of the coast-line of British Columbia), Masset is now the principal Indian Settlement. Here the Haida people who formerly inhabited permanent villages at Virago Sound, North Island, and elsewhere, now centre, though still resorting for purposes of hunting and fishing to their old homes. Inquiries made at Masset among the Indians (including Chief Edensaw, an old but very intelligent man), with other information obtained, enable the following statements to be made respecting fur-seal hunting by the Haida people.

542. About the beginning of the present century the sea-otter was very abundant, and was systematically hunted. Fur-seals were often seen, and, when required for food, were shot with arrows tipped with the bone of the whale, or speared, though the skins at that time were of little value. About the year 1846 (the year in which Fort Victoria was established) the Haida first began to make a business of hunting the fur-seal for skins. Guns were employed from the first in this hunting, loaded either with buck-shot or with "trade bullets," three to a charge. At first comparatively few skins were got, but for the past fifteen years a considerable number has been obtained—in two of these years 1,000 skins or more. In 1873, a post of the Hudson's Bay Company was established at Masset, chiefly for the purpose of buying fur-seal skins from the Indians, and the increased activity of the local hunters coincides with this date. The Indians first saw schooners engaged in hunting off this part of the coast about thirteen years ago.

543. The hunting season is the spring and early summer, and most of the hunting is done in Dixon Entrance, where the hunters have a good chance of making the land safely, either to the south or north, if bad weather comes on. They know that seals are often abundant in the open ocean to the westward, but seldom go far out in that direction because of the danger of being blown off and lost. North Island is a favourite starting-point for the hunters.

544. In hunting there are usually four paddlers in a canoe, and one man to shoot. When shot through the head, and at once killed, the seals frequently sink, and long ago hunters often lost seals in this way; now they spear the seals as soon as they are shot, and seldom lose any. The males are the most apt to sink, while females with young always float. Mr. R. H. Hall, formerly in charge of the northern coast posts of the Hudson's Bay Company, who has himself been at sea with the Haida when hunting, as the result of his own experience, states that if a seal is lightly wounded with shot it generally escapes, as it is then impossible to overtake it with a single canoe. If severely wounded or

killed outright, the seal is seldom lost. After a short time the body generally begins to sink; but "an Indian killing or badly wounding a seal is pretty safe to get it." He has seen three seals shot, and two of them left floating till the third one fired at was picked up.

545. The Indians spoken to were unable to give a percentage ratio of seals lost when shot, but in order to reach some conclusion on this point, with regard to these particular Indian hunters, those who had lately killed considerable numbers of seals were specifically questioned with the following result:

Hunter No. 1.—In the hunting season of 1891 got 21 seals; lost none.
Hunter No. 1.—In the season of 1890 got 38 seals; lost 3 in addition.
Hunter No. 2.—In the season of 1890 got 37 seals; lost none.
Hunter No. 3.—In 1889 got 126 seals; lost none.
Hunter No. 4.—In 1889 got 90 seals; lost 3 in addition.

The Haida seldom ship as hunters in sealing schooners, but the two last-mentioned catches were made in connection with a schooner on which these hunters were engaged, and most of the seals got were taken in Behring Sea, "too far from shore to see the land." They are noted here as indicating the skill of the Haida hunters.

546. Chief Edensaw explained that long ago, when ships first began to come to buy sea-otter skins (in the latter years of the last century and earlier years of the present century), his people were well off, getting plenty of good clothes, &c., in exchange for these skins. When the sea-otter became very scarce the trading vessels ceased to
94 come, and for many years the Haida were very poor, and had to return to the use of skin clothing. Their condition has, however, improved again in later years, partly because of the money they are able to obtain for the fur-seal skins, partly on account of the growth of other industries along the coast in which they can engage. The Haida generally, complain that the continued hunting of the fur-seal has caused it to keep far off shore, and has rendered it so shy, that it is now becoming difficult to earn money near their homes by hunting the seal as before. They are, in consequence, obliged to leave their homes in search of other work.

547. The above notes refer particularly to the northern part of the Queen Charlotte Islands. Special inquiries were not made among the southern Haida tribes. Many years ago there were numerous village communities scattered along the outer west coast of the islands, but these have gradually abandoned this coast, and coalesced with the large communities of the eastern coast. It is, therefore, now difficult to obtain facts respecting the outer coast, where, however, in connection with the sea-otter hunting, many fur-seals were doubtless formerly killed. The Haida eat the flesh of the fur-seal, and esteem it highly.

548. *Tshimsian.*—The principal fur-seal hunting station of the Tshimsian tribes proper is upon Zayas Island. They hunt in the spring, from this place as a centre, in the eastern part of Dixon Entrance and northern part of Hecate Strait. Till about thirty years ago these people never systematically engaged in hunting the fur-seal, though they knew that their neighbours, the Haida, long before this took fur-seals. Each hunting canoe is here usually manned by four persons, and guns appear to have been employed from the beginning of the systematic hunting by the Tshimsians. Buck-shot, or trade bullets of twenty-eight to the pound, three to six in a charge, are used. Three canoes hunting from Zayas Island in 1890 obtained catches of seventy, fifty, and twenty-eight skins, respectively, during the season. The trade prices paid for these skins on the spot in 1891 ranged from 3 dollars to 3 dol. 50 c. for

"grey pups" to 17 dollars for best skins. The number of skins got in various years depends of course on the abundance of seals and the character of the weather; but there is also a great difference from year to year in the number of hunters, governed by the prices of skins, and the wages offered for other work. Probably, about 200 skins are taken each year at present by these Indians, but as these are bought by various traders, it is difficult to get exact figures.

549. A spear or hook about twenty feet in length is often used to recover the seal when shot, and the Indian hunters questioned stated that they had never lost a seal when killed.

550. The Kitkatla tribe of the Tshimsians, whose permanent village is situated on Goschen Island, are noted as fur-seal hunters, though, because of the facility in obtaining employment with regular wages, in late years they have not paid so much attention to this hunting as before. They resort to Bonilla Island in the seal-hunting season, and in 1891 there were there seventy hunters with their families. The number of skins obtained this year was, however, small, as most of the hunters suffered from the influenza epidemic. Generally speaking, about 300 skins are taken in spring and early summer.

551. These people hunt in Hecate Strait, and their mode of hunting is the same as that practised by the Tshimsians proper. A few of the Kitkatlas have been employed on sealing-schooners for the past four or five years, but no large numbers from any of the Tshimsian group of tribes engage in this species of hunting. Mr. R. Cunningham, who has been for twenty-five years familiar with the Indians of this tribe, states that the seals do not usually sink at once unless the breath escapes from the body.

552. *Hailzuk.*—The Hailzuk tribes, of the vicinity of Milbank Sound, resort chiefly to the outlying group, named the Goose Islands, at the seal-hunting season in spring. A number of these Indians, including several well-known seal-hunters, were interviewed at Bella-Bella. They stated that in ancient times the fur-seal was killed by their forefathers only for food. Sea-otters were abundant, and the skin of the seal was not of much value. When a fur-seal was killed, it was kept only if fat. The flesh is sometimes eaten still, but not so much as formerly, though the fat is always kept for food. The best part of the seal for food is the flipper. Before guns were in common use, the spear was employed exclusively in the pursuit of the sea-otter and fur-seal, but now one hunter only still continues to use the spear. They began hunting fur-seals as a business about twenty years ago—not so long ago as twenty-five years, which they remembered because of the small-pox. Guns are now employed, loaded with buck-shot, or with three trade bullets. They hunt only in their own canoes, with two to four men in each canoe; and in these they sometimes go so far from land that only the mountains about Cape Calvert remain in sight. Occasionally they spend a night at sea.

552*. The seal is sometimes shot from a distance of not more
95 than 20 feet, when sleeping, but often at much greater distances. It is taken into the canoe with the hand, or, if beginning to sink, a spear or gaff is used. Males sink more frequently than females.

553. These people were unable to state any definite proportion as between the seals recovered and those lost by them, but they are not accounted very skilful hunters. The largest number taken by a single canoe in one day in 1891 was eight, and in this case two that were killed were lost in addition. About 300 fur-seal skins in all were obtained by the Bella-Bella people alone in 1891, which was a good

year; and nearly all these were brought in by their own co-operative store, and sold afterwards in Victoria. The highest price they got at Victoria was 16 dollars. The Indians here voluntarily expressed their willingness to conform to any laws made as to the killing of fur-seals, but requested that they might be informed in time.

554. *Kwakiool.*—Nawitti, on Hope Island, at the northern end of Vancouver Island, is the place most noted as a centre of fur-seal hunting among the Kwakiool tribes. The people here hunt principally in the winter, and do not resort to special hunting stations. They start on hunting trips very often from Nawitti village itself, and bring large quantities of seal meat, which they relish as food, back to this place. They hunt in their own canoes, and few of them have ever been employed on schooners. Nearly all the men engage more or less in hunting at the proper season. Spears were formerly used in hunting, but guns are now always employed, though the spear is still made use of to recover the seal after it has been shot. The seals shot sometimes sink before they can pick them up, but this happens chiefly when they are shot in the head and killed at once. Mr. A. W. Huson, who is familiar with this part of the coast, states that in some years he has himself obtained in trade as many as 100 skins from the Indians of the Nawitti village alone.

555. Fur-seals are also hunted by the Quatsino, Klaskaino, and other tribes of the Kwakiool family, but the numbers obtained by them are not known to be considerable, and time did not admit of special visits to their villages.

556. *Aht.*—The Aht or Nootkan tribes, inhabiting the whole of that part of the west coast of Vancouver Island to the south of Cape Cook, are the most noted of the British Columbian Indians as expert fur-seal hunters. The Makah, of Cape Flattery, in the State of Washington are a detached tribe of the same stock. These Aht people furnish by far the larger part of the Indian hunters employed on sealing schooners, and have to a great extent abandoned their original method of sealing in canoes from the shore in consequence. The number of skins still obtained by them as independent hunters is, however, not inconsiderable.

557. They are chosen as hunters for the sealing schooners in preference to the Indians of the northern part of the coast, partly because of their experience and dexterity in the use of the spear, but also because they are accustomed to hunt in comparatively small canoes, requiring fewer men, and taking up less room on the schooner's deck. The northern Indians require larger canoes, and usually no greater number of skins is taken by a large canoe than by a small one. It is true that the spear has, even among these people, now been largely replaced by the gun, but, meanwhile, they have become familiar with the method of hunting from schooners. Still another cause is found in the fact, that the Ahts are by no means so favourably disposed as other coast tribes toward devoting themselves to regular occupation, such as cannery work or logging.

558. The Ahts are divided into a large number of tribes and village communities, from many of which details as to seal-hunting have not been obtained, but the following notes on some of them may be taken as examples of the whole:

Hunting in canoes from the shore is still practised at Nootka Sound, where the hunting season embraces about three months of the later winter and early spring. The hunters go out a long way from shore, and, when the weather is fine, sometimes stay two days at sea. The

skins obtained are disposed of to various traders, but, in all probability, about 200 are got at this place annually. One of the hunters said that about twenty years ago he had himself secured 260 seals, but as the prices were then very low, he obtained just 1 dollar each for the skins.

559. At Clayoquot Sound, the Indians stated that in the times of the grand-parents of the present generation, fur-seals were valued and hunted only for food. They were then always killed with spears. Independent hunting with canoes from the shore has fallen into disuse for the last seven or ten years at Ahouset village and Clayoquot proper, respectively. The Indians from this vicinity now hunt only from schooners, and many are so employed every summer. Long ago many of them were drowned when hunting independently, and this
96 mode of hunting has come to be considered very dangerous. At the present time, both the gun and spear are employed in taking seals, according to circumstances or the habits of the individual hunter.

560. At Barclay Sound, the Indians of several villages still engage to a considerable extent in hunting in their own canoes from the shore, but they are also in many cases employed on sealing-schooners. The number of seals taken by them in independent hunting varies between wide limits from year to year. In the spring of 1891, about 1,300 skins at least were taken to Victoria from this vicinity, all obtained in this way. The spear is usually employed still in preference to the gun by these hunters.

561. The Makah Indians of the neighbourhood of Cape Flattery are great seal-hunters. They themselves now own three small schooners, which are registered at Port Townsend. Some of them go every year in schooners owned by Whites, but the old method of independent hunting from the shore is also still practised. Two or three men generally go in each canoe, and occasionally stay out a night at sea, where they are frequently as far as thirty miles from land. They usually still spear the seals, whether hunting independently or from schooners, though the shot-gun is employed by some of the hunters. The older men think that shooting is bad, but the younger men have taken to it. The spear used has two prongs, with detachable barbed heads. It is about fifteen feet long, and is thrown from the hand, without a throwing-stick, the butt end being flat and widened, with grooves cut in it for the fingers. The same type of spear is employed by all the Aht people.

562. The old men say that before they were born (say, about sixty years ago), the fur-seal was hunted for food and clothing, and was abundant; but on several occasions a number of Indians lost their lives at sea while hunting, and, consequently, for about twenty years the hunting was practically given up. About the time the small-pox came among them (probably in 1852, as ascertained from other sources) hunting began again, and has been continued ever since. They think that it was about twenty-five years ago (§ 586) when they first knew of Whites going to sea to hunt the fur-seal. Nearly 1,000 fur-seal skins are annually got by the Makah Indians, but a considerable proportion of the whole number is obtained by them in their schooners along the coast to the northward or in Behring Sea, so that the precise number taken in the vicinity of their own territory is difficult to ascertain. Nearly the whole of the skins taken by these Indians are sold in Victoria.

563. When the seals are speared, practically none are lost, but when shot some are lost by sinking, though a spear is employed to gaff them. These Indians stated that in taking fifty seals, sometimes one, sometimes two, might be lost, but occasionally none would be lost,

564. Further particulars of interest respecting the Indian fur-seal hunters of Cape Flattery may be found in Judge J. G. Swan's report on that subject contained in the "Report of the Fisheries and Fishery Industries of the United States," vol. ii, p. 393. Also in the "Bulletin of the United States Fish Commission," vol. iii, p. 201. From the first of these publications, it appears that the independent catch of the Cape Flattery Indians amounted to 1,558 skins in 1880, with an average value of 9 dollars per skin at that time. In a letter of recent date, the same gentleman states that no official record of the number of skins taken by these Indians has since been kept.

565. While it is to be regretted that it is impossible to give an accurate statistical record of the number of fur-seal skins taken by the natives of the coasts of Alaska, British Columbia, and Washington, by their independent hunting in their own canoes from the shores, the results of inquiries made at a number of detached places along the coasts, and given in abstract above, are at least sufficient to show that important vested interests are there involved.

566. It is undeniable that all the natives represented along this great line of coast have been accustomed from the earliest times to hunt the fur-seal. So long as the sea-otter was abundant, little use was made of the inferior skin of the fur-seal, and that animal was prized chiefly as an article of food. At a later date, when the hunting of the sea-otter had become scarcely remunerative because of its increasing scarcity on this part of the coast, the price offered for the skins of the fur-seal was still insufficient to tempt the natives to engage systematically in the somewhat hazardous business of its capture; but as the skins became higher in price, and notably within the last twenty years, the hunting of the fur-seal has possessed a greater importance for the natives. Within quite recent years, however, the independent hunting of natives has somewhat decreased from two principal causes—the employment of large numbers of the more expert natives on sealing vessels, and the growth of various other industries capable of affording remunerative employment.

567. The low prices given in former years to the Indians of the
97 British Columbian coast for their skins were in part due to the fact that, in accordance with native custom, the skins were stretched and dried, and were thus not so suitable for the trade as salted skins; but of late years the Indians have become accustomed to salt nearly all the skins they take.

568. Respecting the dates between which the Indians of various tribes engage in seal-hunting, and in connection particularly with the notes elsewhere given on the migration of the fur-seal, it must be observed that these dates do not necessarily coincide with those defining the occurrence of fur-seals along the coast. The actual time of beginning the hunt depends chiefly upon the date at which such fine weather as is described as "sealing weather" sets in. The close of sealing is, on the other hand, largely governed by the arrival of the particular season at which immemorial custom requires that fishing of some other kind—generally halibut fishing—shall begin.

569. The best estimates obtained of the number of skins taken annually by the Indians of the British Columbia coast alone, for the last four or five years, show that about 1,500 in all are taken to the north of the northern end of Vancouver Island, and at least a similar number to the south of that point, or say, at least 3,000 skins each year for the entire coast. Estimating these at 10 dollars a skin (an average price sufficiently low to cover the relatively small value of the skins of grey pups

or yearlings which sometimes form a considerable portion of the catch), the gross value of the catch amounts to 30,000 dollars annually. This amount constitutes a very important part of the whole revenue of these natives, with whom also the fur-seal forms a staple article of food at certain seasons.

570. The less direct, but financially more important, interest of the same native peoples in the pelagic sealing proper, in which they are now largely engaged, is of course not included in the above estimate.

III.—Pelagic Sealing.

(A.)—*Origin and Development.*

571. The interest of the natives of the west coast of America in the capture of the fur-seal is an immemorial one, but in the earlier years of trade upon the coast the skin of the fur-seal occupied a subordinate position to that of the sea-otter, and in still earlier and pre-historic times the fur-seal seems scarcely to have been pursued except for food. The sea-otter yielded an ample supply of superior skins for clothing, while sea-lions, hair-seals, and other animals afforded skins better suited to the manufacture of skin boats by the northern tribes, and for the southern, that of other articles requiring strength of hide rather than thickness of fur.

572. The principal areas in which the fur-seal was more or less hunted in such early times, were doubtless those extending on the west coast from the vicinity of Cape Flattery to about the latitude of Sitka. To the south of Cape Flattery the natives were not seafaring in their habits, and the same may be said of most of the native peoples of the Asiatic coast, along the Kurile Islands to Kamtschatka.

573. So long as the skins of the sea-otter could be obtained in abundance for Chinese markets (where at the time they were most valued), the White traders then beginning to frequent the coast made little inquiry for the comparatively inferior skin of the fur-seal, but these, with other skins of minor value, were purchased from time to time by the traders, and have occasionally been thought worthy of mention in the narratives of their voyages. The observations on this particular subject which it is now possible to glean from these narratives are naturally rather meagre, but even an imperfect examination of some of them, is sufficient to show that from the first the skins of the fur-seal were counted among articles of trade with the natives along various parts of the coast to which these animals did not habitually resort for the purpose of breeding, and where, consequently, they must have been taken by the natives at sea.

574. It was primarily the search for, and trade in, the skins of the sea-otter which, in the last century, impelled the Russian adventurers to extend their operations from the coasts of Asia along the Aleutian Islands and to the American coast. When the Commander and Pribyloff Islands were successively discovered, the skins of the fur-seal began to be added in large numbers to the lists of articles of commerce, but even from the first, and before these principal breeding places had been found, fur-seal skins also were procured from the Aleut natives.

98 From incidental references made in the summaries of early Russian voyages, such as those given in Bancroft's History of Alaska,

enough facts to show this may be gathered, though a complete examination of the original works might doubtless afford additional facts of the same kind.

575. Thus, in 1766, the "Vladimir" included in her return cargo 2,000 fur-seal skins which are said to have been brought from the Near Islands of the Aleutian chain. The number here given is, however, so considerable, that it may be regarded as not improbably showing that at this early date some place resorted to by the fur-seal for breeding, still existed on Agatu, Attu, or other neighbouring islands of the group; in which case all of these skins may not have been taken at sea. The "Arkangel Sv. Mikhail," returning from a voyage which had extended from 1772 to 1777, during which Kadiak was reached, but in which no mention is made of any call at the Commander Islands (the Pribyloff Islands had not then been discovered), brought back 143 fur-seal skins. In 1790, again, Sauer, of the Russian Scientific Expedition, under Billings, is recorded to have been told at Shelikoff's establishment at Kadiak, that 600 double bidarkas had been sent out to hunt sea-otters, fur-seals, and sea-lions. In 1812, in Chugatach Bay, Prince William Sound, where seals had formerly been plentiful, the yield is stated to have fallen off to fifty skins.*

576. Similar incidental allusions may be found as well in the records of other voyages. Thus, among the skins sold in China by Portlock and Dixon, in 1788, were 110 fur-seal skins, though these navigators did not approach the known breeding islands in any part of their route.†

In 1791, again, Captain Marchand obtained thirty-seven seal-skins from the natives of Norfolk Sound, these skins forming a considerable proportion of the whole amount of furs got there.‡

577. There is often some difficulty in identifying the particular kind of skins which were obtained by such traders along the coast, because of the indefinite and varied terms made use of by them, but it seems probable that much of that classed as "beaver" was in reality fur-seal.§ This must certainly have been the case in the Queen Charlotte Islands, for though Portlock and Dixon state that considerable numbers of "beaver skins" were purchased there, the beaver is not, and never has been, a native of these islands.‖

578. The opinion just referred to is that of Mr. Alexander Mackenzie, who has long been familiar with the Queen Charlotte Islands in particular, and who bases his statements upon the direct testimony of the natives themselves, to the effect that they frequently in former times traded fur-seal skins to the vessels then frequenting the islands in search of sea-otter skins.

579. Such facts, taken in conjunction with those already given as the result of our own inquiries on the West Coast, are, at least, sufficient to show that the natives were, from the earliest recorded dates, accustomed to hunt the fur-seal, as well as the more valuable sea-otter, at sea. So long as the skin of the fur-seal possessed but an insignificant commercial value, little attention was paid by traders and others upon the coast to the hunting of this animal by the Indians. The skins scarcely appeared in the lists of furs procured, and very little has been placed on record on the subject. A few skins were purchased by the Hudson's Bay Company from time to time, chiefly those offered by the Cape Flattery Indians.

* Bancroft's History, vol. xxxiii, pp. 155, 171, 286, and 528.
† "Voyage to the North-west Coast of America," p. 300.
‡ "Voyage Autour du Monde," tome ii, p. 11.
§ The term "Sea-beaver" was also, however, sometimes applied to the sea-otter.
‖ "Voyage to the North-west Coast of America," pp. 169, 201, and 300.

The first really commercial appearance of fur-seal skins at Victoria, according to Mr. R. Finlayson, was in or about 1846, between which date and 1856 considerable numbers of skins from the Pribyloff or Commander Islands, collected at Sitka by the Russian Fur Company, were forwarded from Victoria to London by the Hudson's Bay Company. These were shipped in casks, and were presumably salted skins, doubtless all taken on the breeding islands. In part overlapping the period just mentioned is the record of purchase of fur-seal skins by the same Company from Indian hunters, which runs from 1852 to the present year. (See Appendix G.)

580. When, however, better prices began to be paid for these skins, those persons interested in Indian trade along the coast became familiar with the native mode of hunting, and recognized the difficulty and danger to which the native hunters were often exposed in consequence of the distances to which they were obliged to venture from the shore in pursuit of the seal. The endeavour was then made to encourage the Indians in sealing, because of the profits obtained from the sale of the skins, and it naturally occurred both to the Indians and the traders (some of whom employed small vessels for the purposes of traffic), that a combination might be formed which would be advantageous to
99 both parties. It became evident that the danger and hardship inherent in the independent native mode of hunting might be much reduced by employing small vessels to carry the Indians and their canoes to sea in search of seals, thus to serve as a base of operations from which they might more successfully practise this industry.

581. At this time, the Indians of the coasts of South-eastern Alaska and British Columbia knew nothing whatever about the summer resorts of the fur-seal in Behring Sea, and very little was known by any one as to the extent or course of their migrations. Thus, Dall, in his elaborate work on Alaska, published in 1870, though conversant with all facts then available, is able merely to make the following statement on this subject: "The Alaskan fur-seal formerly extended from the ice-line of Behring Sea to the coast of Lower California. At present, a few stragglers reach the Strait of Fuca . . . , but the great majority are confined to the Pribyloff Islands . . . . They leave on the approach of winter—usually about the end of October. They are supposed to spend the winter in the open sea south of the Aleutian Islands."*

Even so late as 1880, Professor Allen, after a very careful investigation of the whole subject, was able to write in the following very general way only with regard to the migrations of the fur-seal:

> Except during the season of reproduction, these animals appear to lead a wandering life, but the extent and direction of their migrations are not yet well known. Steller spoke of their migrations being as regular as those of the various kinds of sea-fowl, and they are recorded as arriving with great regularity at the Pribyloff Islands, but where they pass the season of winter is still a matter of conjecture.†

582. It was the habit of the Indians, when sealing in their own canoes, to bring back the entire carcasses of the seals killed, and to utilize the flesh and fat as food. When schooners were first employed as an auxiliary, the same practice was very often followed. The carcasses belonged to the individuals killing the seals, and were prized by them, and whenever possible carried back to the villages to which the sealing Indians belonged. The vessels were seldom very long away from port. The sealing voyages thus at first made were restricted in their scope, and it was only by degrees that it came to be discovered that the seals

* "Alaska and its Resources," p. 493.

† "Monograph of North American Pinnipeds," p. 335.

might be profitably followed in their general northward movement along the coast, after the cessation of the rough wintry weather. It was also found that some seals might be obtained in the winter and early spring as far south as the coast of California, and before "sealing weather" set in on the coast of British Columbia; and as no other profitable employment offered for the sealing schooners, it became customary for them to make a cruize to the southward before engaging in the fishery to the north of the Strait of Fuca. At a later date still, the pelagic hunters ascertained, as the result of their own experience, that the fur-seals might be followed with advantage through the eastern passes of the Aleutian chain, and taken during the months of July and August, and occasionally during the early part of September, or till such time as stormy weather rendered further hunting impossible.

583. Thus, beginning as a purely local industry, in which the Indians of the west coast of Vancouver Island, with those of the vicinity of Cape Flattery in the State of Washington, were chiefly interested, the sea-sealing naturally developed and extended with the increasing knowledge gained of the habits and haunts of the fur-seal, till its operations covered almost the entire migration-range of the animal, and the number of skins obtained became so considerable, that the sealing interests of the Alaska Commercial Company (at that time the lessees of the Pribyloff and Commander Islands), and their heretofore profitable monopoly of the fur-seal of the North Pacific, was notably affected. Not until this occurred was any serious protest, or, in fact, any complaint whatever raised against the practice and methods of pelagic sealing. On the contrary, in so far as it became a matter of public knowledge, pelagic sealing was spoken of as a commendable new industry, developing maritime enterprise, in which both citizens of the United States and of Canada were engaged, and which afforded remunerative employment to them, as well as to a large number of the Indian population of both countries.

From the commercial point of view, which is necessarily that of the lessees of the islands, it is not only and perhaps not so much the fact that at sea a considerable number of seals are killed, but the circumstance that this industry interferes with their monopoly or practical monopoly of the market, which has frequently been admitted to be the most valuable part of their franchise, and in the endeavour to maintain which they have even purchased the greater part of the catch made at sea, particularly in the year 1890.

584. With the altered conditions and extended range assumed by pelagic hunting in the course of the few following years, certain changes also occurred in the manner in which it was conducted. The Indian hunters became accustomed to go far from their native villages, and to engage for the hunting of an entire season. The spear employed from pre-historic times by the people of the Aht Stock was at first the only weapon used in pelagic hunting. The captains of schooners engaging in the business discouraged the employment of fire-arms, under the belief that the result of their use would be to alarm the seals and reduce the chances of a good catch. This belief was doubtless in some measure justified, but as White hunters also began to engage in the business, it became impossible to prevent the use of such weapons; the rifle was introduced, though soon superseded by the shot-gun, which has now become the usual hunting weapon. Most of the Indians readily adopted this new and more effective mode of hunting, and each year the number of these people employed, together with that of the vessels engaged in the industry, increased. The num-

ber of Whites employed as hunters varied, but, as a rule, competent Indian hunters have always been preferred when they could be obtained.

585. The Indians themselves benefited largely from a pecuniary point of view, and, in consequence of the encouragement offered by the pursuit of the fur-seal, began themselves to own and navigate sealing-schooners. Perhaps in no other way is the influence of the sealing industry toward the civilization of the Indians rendered more apparent than by the facts, that three sealing-schooners are now actually owned by the Makah Indians of Cape Flattery, while five are similarly owned by Indians of the coast of Vancouver Island, while in addition it is estimated that the payment to the Indians employed in the British Columbian sealing fleet in 1890, calculated on the number of skins obtained, was probably between 35,000 dollars and 50,000 dollars.

586. Reverting to the question of the date of the first known practical attempts at what is now classed as pelagic sealing proper, it appears, from information kindly supplied by Mr. J. W. Mackay, that this method of sealing was first attempted by Captain Hugh Mackay, of the sloop "Ino," in the spring of 1866. Captain Mackay, however, soon found that this sloop was too small to conveniently carry two or three Indian canoes, and he accordingly built, for the purpose of sealing, the schooner "Favourite," 75 tons, which was registered in Victoria on the 18th June, 1868. Little is known as to these first sealing voyages, but, doubtless, as a consequence of their success or good promise, other vessels were fitted out. Thus, Judge J. G. Swan, of Port Townsend, in a letter on this subject, quotes Captain McAlmond, of New Dungeness, Washington, as follows on the matter: "The first schooner to take Indians that I know of was the 'Lottie,' in 1869, from Neah Bay, believing that we were the pioneers. I afterwards understood that a vessel from Victoria was also taking an Indian crew." The vessel from Victoria here mentioned was evidently the "Surprise," of which Mr. Charles Spring writes: "The first attempt at sealing, in a practical way, with schooners and Indian hunters, was made in or about 1869 by Jas. Christienson in the schooner 'Surprise,' owned by the late Captain William Spring, of Victoria, British Columbia." From other sources it was ascertained that the Indian hunters employed on this and other pioneer sealing-schooners were obtained at Pachena, on the south-west coast of Vancouver Island, near the entrance to the Strait of Fuca.

587. The history of the progress and continued expansion of the pelagic sealing industry may be here briefly set out. In regard to that carried on from the British Columbian coast, it has been particularly inquired into and recorded by Mr. A. R. Milne, Collector of Customs at Victoria, upon whose investigations, checked and amplified in so far as has been possible, the subjoined summary is based.* It has already been stated, however, in another part of this report, that, for the earlier years of the development of the business of sealing at sea, the data are very incomplete, as in these years it had scarcely begun to receive any particular attention, and records were not systematically kept of it by the Customs authorities, as has been required of them in later years.

588. From 1871 to 1878, it is known that three schooners were engaged more or less continuously in the sealing business on the west coast of Vancouver Island, where, however, they were also employed as traders. In 1879 to 1881 four or five schooners were employed in sealing along the same coast. In 1882, auxiliary steam-power was added to two of the schooners, and eight vessels in all were employed

*Parliamentary Paper [C.—6368], August 1891.

in the industry. In 1883 nine, and in 1884 eleven, schooners were employed, and all are said to have been fairly successful. One of these vessels, the "Mary Ellen," belonging to Victoria, outfitted at San Francisco, and eventually continued her voyage into Behring Sea, which she entered about the 15th June, and left about the end
101 of August. This, so far as ascertained, was the first of the British Columbian schooners to extend sealing operations to the waters of Behring Sea. It has not, however, been definitely ascertained that the "Mary Ellen" was the only vessel to enter Behring Sea in this year.

589. The result of the venture of the "Mary Ellen" having been satisfactory, she, and at least one other vessel, entered Behring Sea in 1885. Thirteen British Columbian schooners in all are known to have been engaged in sealing in this year.

590. In 1886, eighteen schooners engaged in the sealing industry. One of these had been brought round the Horn from the eastern coast of Canada for the purpose. Two were wrecked, but the remaining sixteen vessels entered Behring Sea; and in this year, for the first time, exception was taken to sealing in this part of the ocean by the Government of the United States, and three of the sealers, the "Carolena," "Onward," and "Thornton," were seized.

591. In 1887, seventeen British Columbian schooners were engaged in sealing; fifteen of these are believed to have continued their operations into Behring Sea, six being seized there by the United States cutters "Rush" and "Bear."

592. In 1888, twenty-one vessels from British Columbia composed the sealing fleet, and though the fishery was carried on in Behring Sea in the latter part of the season, no seizures were made by the United States. One schooner, however, the "Araunah," was this year seized and confiscated by the Russian Government, having been detected in sealing within the territorial waters of Copper Island.*

593. In 1889, the sealing fleet consisted of twenty-two vessels, all of which are believed to have entered Behring Sea. In this year four of these vessels were seized, and one was ordered out of the sea.

594. In 1890, twenty-nine British Columbian vessels were engaged in sealing, twenty-three of which entered Behring Sea.

595. In 1891, the sealing fleet of British Columbia had increased to fifty vessels, and most, if not all, of these cleared with the intention of entering Behring Sea. The adoption of the *modus vivendi* between Great Britain and the United States, however, had the effect of turning back many of these vessels, while the patrolling of the sea and warning of others, with other circumstances connected with the operations in this year, need not be repeated here.

596. As already noted, the first extension of the cruizes of the sealing-schooners of British Columbia was that along the coast to the southward, and this began to be practised as early as 1878 or 1879. Sealing operations were first extended into Behring Sea by sealers from British Columbia in 1884, though one or more United States schooners had already at that date been for several years accustomed to frequent Behring Sea for this purpose, and cargoes obtained by them were sold in Victoria in 1881 and 1883. The practice grew up of making in the winter and early spring a voyage from Victoria to the southward, after which the vessels returned to Victoria and outfitted there for the northern voyage. This was found, however, to be inconvenient, from the loss of time involved, as well as from the fact that crews often had to be

* Parliamentary Paper [C.—6041], 1890.

re-engaged for the second trip. Therefore, in 1890, arrangements were made by the sealers to rendezvous with a steamer at some northern point in June, to tranship their skins for conveyance to Victoria, completing their outfit for hunting in Behring Sea at the same time. In 1890, Sand Point, in the Shumigin Islands, was the place selected for the purpose, and in 1891 Alitak Bay, Kadiak Island, was chosen.

597. The foregoing details respecting the growth of the pelagic sealing industry of British Columbia have been obtained by special research and inquiry, but it has been found to be practically impossible to procure, whether officially or otherwise, comparable particulars of the pelagic sealing business conducted by United States vessels. It is known that vessels sailing from the New England States have been engaged in the capture of the fur-seal since the latter part of the last century, their operations being carried on principally in the southern hemisphere, and the mode of killing the seals being that of a promiscuous slaughter whenever these animals could be found on shore, carried out by means of clubs or otherwise. This method of killing seals has, however, no analogy with that of pelagic sealing as now understood. It is further known, that in more recent years, and after the Governments of Russia, Japan, and the United States had provided regulations for the protection of the respective breeding islands under their jurisdiction, vessels were dispatched by unscrupulous persons for the purpose of raiding the rookeries upon these islands. The records preserved of the raids themselves, which are treated in detail elsewhere, show that such illegal sealing has been carried on, but, naturally enough, it
102 is difficult to obtain full particulars of its character or magnitude.

This again, however, is quite distinct from the question of pelagic sealing proper, the origin of which little if at all antedates the year 1869. Moreover, while this raiding of the various breeding islands appears to have been practised from year to year in the case of United States vessels, it has latterly been more and more replaced by the legitimate pursuit of the fur-seal at sea. There was thus almost an organic connection between the two methods of sealing in the case of vessels sailing from the United States, that did not exist in the case of the sealing industry of British Columbia, which grew up directly from the independent Indian sea-sealing, and had not previously existed in any other form.

598. A certain number of vessels have for many years taken clearances from the Pacific ports of the United States for "hunting and fishing voyages;" but while most of those which have been engaged in any form of sealing have doubtless been included under this general designation, it comprises as well vessels which may have been engaged in various forms of fishing proper, and in the hunting of the sea-otter. Even in the last census of the United States (1890) the vessels engaged in sealing are not specially indicated, but are included under the general designation of the "fur-seal and sea-otter fleet."* If such clearances were confined to a single port, local inquiries might without great difficulty result, in the case at least of the later years, in eliminating vessels which were not engaged in pelagic sealing, and in affording a reasonably exact statement of the operations of those of the latter class, but the number of ports of clearance has unfortunately baffled inquiries made in this direction.

599. It is certain, however, that the pelagic sealing industry has continued to grow in the United States in a ratio corresponding to that of the same industry in British Columbia. In 1889, the best estimate

* See United States Census Bulletin, No. 123.

which Mr. Milne could quote of the number of vessels engaged in it placed this at thirty-two.* The United States Census Bulletin relating to the same year gives the fur-sealing and sea-otter hunting vessels at twenty. It is probable that though two or three of these vessels were chiefly engaged in sea-otter hunting, even these occupied part of their time in sealing, while it is known that most of the fleet was primarily engaged in sealing. In 1890, more than fourteen vessels sailed from United States ports for sealing, but the exact number has not yet been ascertained. In 1891, the number had increased to about forty-two.

600. The estimated value of the British Columbian sealing fleet with its equipment, as it left port in 1891, was 373,000 dollars. That of the United States fleet in the same year exceeded 250,000 dollars. According to the United States Census Bulletin already cited, the value of the vessels engaged in the fur-seal and sea-otter industry in 1889 was 152,757 dollars. Dividing this amount by the tonnage, an average tonnage value for this fleet is obtained of 160 dol. 54 c., while a similar calculation based on the figures for the British Columbia fleet of 1891 gives a corresponding tonnage value of about 114 dollars.

(B.)—*Methods.*

601. In what has already been given, the methods of pelagic or sea-sealing have been indicated in a general way. These methods are essentially of a very simple character, but the actual procedure followed in killing the seals may now be briefly alluded to. The vessels employed range in size from 130 to 40 tons. Taking the sealing fleet of British Columbia in 1891, the average number of canoes or boats carried on each of the small vessels (which are all or nearly all schooner-rigged) is about seven. The average size of the vessels in 1891 was sixty-five tons, and the average number of men (White and Indians) employed on each was in the same year about twenty-two.

602. The effective hunting strength of each vessel depends on the number of canoes or boats carried, for no advantage is gained by carrying large boats, a single hunter being sufficient for each. Various plans are therefore adopted, to enable as large a number of canoes or boats as possible to be stowed on the deck of the schooner.

603. It is necessary for success, not only that a sufficient number of seals should be fallen in with, or, in other words, that an area of sea-surface rather plentifully sprinkled with seals should be found, but also that the weather should be favourable. In stormy or thick weather sealing is impossible, and the most the sealing master can attempt to do is to stay with the seals. The circumstances being favourable, the boats or canoes are launched and manned, and set out in different directions from the schooner in such a way as to cover as great an area as possible. The schooner has only to keep to leeward of the boats, so that these may the more easily rejoin her at the close of the day.

103 604. Seals thus met with upon the sea-surface are roughly classed by the hunters as "sleepers" and "travellers," and the former are of course the most easily approached. Whether in canoes or boats, paddles are employed in preference to oars, as they enable a more noiseless approach to the seals. When a seal is seen, the boat or canoe is quietly but swiftly impelled toward it, till the hunter believes that he has arrived within sure range, when he fires. If killed, as happens in the majority of cases, especially now that the shot-gun has superseded the rifle, the seal may either remain floating upon the

* Parliamentary Paper [C.—6368], London, August 1890, p. 362.

surface or begin to sink slowly. In either case, the boat or canoe is at once urged forward, and if the carcass, which does not differ much in specific gravity from the water, is already partly submerged, it is at once secured with a 15-foot gaff, and hauled on board. If the seal should happen to be merely badly wounded, it either struggles upon the surface until gaffed, or, if retaining strength to do so, dives. If quite lightly wounded, as of course happens in some cases, it may eventually escape; but if severely wounded, it is probably killed at the next rise after a short submersion.

605. We are informed that it has been learned by experience that seals may easily be lost if shot in the neck, as in this case the muscular contraction of the body often forces most of the air from the lungs, and the carcass then may sink much more rapidly than usual.

606. This brief description refers to the killing of seals by shooting, which is now the method most commonly practised.

607. The spear is still often employed by the Indians, and when used it involves a closer approach to the seal, before it can effectively be thrown. If either of the two detachable barbes enters the body the seal is never lost, and if neither strikes it, it escapes unhurt; in short, if the seal is speared, it is secured.

608. The dead seals are drawn into the boat or canoe, and brought back at the close of the hunt to the schooner, on board of which they are subsequently skinned, and the skins laid down in dry salt for curing. It is said that in recent years considerable improvement has been made in, and extra care given to, the preserving of the skins on the schooners. This will no doubt have a favourable influence on the prices obtained for the "pelagic skins."

609. The prosecution of this industry at sea requires all the courage and skill which can be brought to bear on it. The canoes often find themselves far from the supporting schoonor, and should bad weather or one of the frequent fogs of the northern part of the west coast set in, it may be difficult or impossible for them to regain her with ease. Several instances are known where Indian hunters out off the west coast of Vancouver Island have entirely lost the supporting schooner in fogs, and have only regained the distant shore after suffering great hardships.

610. The accusation of butchery laid against those who take the seals on shore cannot be brought against this pelagic method of killing the seal, which is really hunting as distinguished from slaughter, and in which the animal has what may be described as a fair sporting chance for its life. The little vessels employed in such work must be staunch and well found, for they have not only to make long voyages, but must be able to keep the sea in any weather, and it often happens that they have to lie-to for days together in storms, with all hands crowded in by no means comfortable or commodious quarters below.

611. Thus, whatever arguments may be advanced against some of the methods and consequences of pelagic sealing, it is not possible to speak of these in terms such as those employed by Lutké, who visited the Pribyloff Islands as long ago as 1827, and who records his impressions as follows:

Il y a quelque chose de révoltant dans ce carnage de sang-froid de quelque milliers d'animaux sans defense. Les chasseurs, tout endurcis qu'ils sont à ce genre de meurtres, avouent que souvent leur main a peine à se lever pour frapper une créature innocente qui, les pattes en l'air et poussant des cris plaintifs, quelquefois tout à fait semblables à ceux d'un enfant qui pleure, semble implorer miséricorde.*

* "Voyage autour du Monde," Tome i, p. 261.

612. Free use has been made of the appellation "poachers" as applied to pelagic sealers in general, and to the Canadian sealers in particular, in the course of discussions arising in the Behring Sea controversy, with the obvious purpose of prejudicing public opinion. The use of this term may be justified in the case of raiders upon the breeding islands, but in such cases only, and, as has already been stated, no instance is actually known in which Canadian sealing-vessels have been found raiding the Pribyloff Islands. It more nearly describes, however, the operations of the sealing fleet in the southern hemisphere, which for many years
104 has consisted almost solely of vessels sailing from the United States, and which as lately as 1880 numbered ten vessels, aggregating 1,277 tons, and manned by 272 men.* The decreased importance of this fleet in still later years has resulted only from the reduction in number of seals brought about by its operations. Sealing by these adventurers has been conducted entirely on land, on islands or coasts either nominally or actually in the possession of various Powers, but in no instance controlled by the United States, and in some cases in direct infraction of all local laws. The killing of the seals has always and everywhere been carried out in the indiscriminate, ruthless, and wasteful manner described in detail in several of the works elsewhere cited in this Report, and in most cases a greater part of the catch has consisted of females.†

(C.)—*Proportion of Seals lost.*

613. As to the proportion by number of seals which are lost after being killed or mortally wounded, to those actually taken, a great variety of very wild statements have been made, and it must be admitted that in so far as concerns mere assertion and reiteration of such assertion by means of the press and in every other conceivable manner, the critics of pelagic sealing have established an unchallenged supremacy over its defenders. If popular opinion could be educated into the belief that the operations of the pelagic sealer are wholly barbarous and scandalously destructive, by the means of unsupported assertion, this should have been fully accomplished by this time. It is necessary, however, in order to arrive at as nearly as possible a true result, to weigh and criticize the evidence offered, and to take into account the sources from which it comes. It is further most important to remark that actual numerical statements are far more trustworthy and more susceptible of critical analysis than general assertions, which, however, have heretofore been those most commonly employed as the basis of argument in this question.

614. Disregarding mere rhetorical statements made by irresponsible individuals, or given forth without signature in the press, the following citations may be made as representing the published evidence adduced in official reports in regard to the loss of seals by the sea-sealers. It is wholly upon the evidence here cited or referred to that all the statements as to great losses of seals in pelagic sealing have, up to this time, been founded.

Captain C. A. Abbey, from June 1886 to the latter part of August in the same year in command of the United States Revenue Cutter "Richard Rush," in Behring Sea, says of the pelagic sealers: "I should judge they killed about three for every one they got."‡

* "Fishery Industries of the United States," vol. ii, p. 439.
† Ibid., p. 431.
‡ "Fur-seal Fisheries of Alaska," House of Representatives, 50th Congress, 2nd Session, Report No. 3883, p. 246.

Captain Shephard, in command of the same vessel in 1887 and 1888, says, on the same subject: "I have no very accurate information on which to base an opinion, but I should judge that they lost from 40 to 60 per cent. of them. I saw a good many shot from the boats as I was approaching, and I think they lost two or three out of five or six that I saw them shoot at."*

Mr. W. B. Taylor, Agent of the United States Treasury Department on the Pribyloff Islands in 1881, says, in answer to a question as to the proportion of seals recovered by pelagic sealers, "that he does not believe that more than one-fourth of the seals shot at are got, the rest sinking."† This was before the year 1881, when but few vessels had as yet engaged in the industry, and one only is actually known to have been in Behring Sea in this year.

Dr. H. H. McIntyre, Superintendent of the Pribyloff Islands for the lessees for a number of seasons, says: "I think not more than one-fifth of those shot are recovered. Many are badly wounded, and escape."‡

Mr. G. R. Tingle, at the time Government Agent in charge of the Pribyloff Islands, gave the following testimony: "The logs of marauding schooners have fallen into my hands, and they have convinced me that they do not secure more than one seal out of every ten that they mortally wound and kill." He then proceeds to make some calculations on the basis of this statement. At a later stage, and when more closely pressed for details, he explained the allusion above made more clearly as follows: "I remember reading the log-book of the 'Angel Dolly,' which I captured. There was an entry in that log-book which
105 read as follows: 'Issued to-day to my boats 300 rounds of ammunition, all expended, and one seal-skin;' . . . . another entry: 'Seven seals shot from the deck, but only secured one.'"§

Mr. Tingle gives some further citations of a similar kind from the same log, which may, however, be found at length in the "Fur-seal Fisheries of Alaska." In it the captain refers to the character and want of skill of his crew in language rather too forcible for citation in this report.‖

Mr. C. A. Williams, a member of the Alaska Commercial Company, in another part the report of the investigation on the Fur-seal Fisheries, from which the above quotations are made, refers again to the same log-book as the "best testimony we have" on the subject of the proportion of seals lost by hunters at sea, and adds that the captain, in the log, estimates that he got but one seal in seven shot at.¶

Mr. H. D. Wolfe, who described himself as "in the newspaper business," and stated he had some familiarity with certain parts of Alaska, though claiming no experience in sealing, gives testimony to the following effect: "I think the hunting of seals in the open water is very injudicious, because the hunters will shoot, and out of every 100 seals they shoot you will not get more than thirty. . . . . If you don't hit a fur-seal or a hair-seal right in the head, you are not going to catch him; he will sink."**

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*Ibid., p. 230.
†Ibid., p. 118.
‡Ibid., pp. 164 and 170.
§"Fur-seal Fisheries of Alaska," House of Representatives, 50th Congress, 2nd Session, Report No. 3883, pp. 164 and 170.
‖See "Further Correspondence relating to Fur-seal Fisheries in Behring's Sea," Washington, 1890, pp. 37, 38, and 332.
¶"Fur-seal Fisheries of Alaska," pp. 108 and 109.
**"Report of United States Senate Committee on Relations with Canada, 1890," p. 140.

615. Nothing more precise than the statements just quoted, every one of them made by those presumably interested in, or engaged in, protecting the breeding islands, but without personal experience in this matter, has been found as authority for the theory which has been so diligently propagated, that excessive waste of seal life results from the practice of pelagic sealing.

616. The following statements, called forth by the publicity given to the above-mentioned theory, though for the most part made by persons directly interested in pelagic sealing, are given over their signatures, and as the result of experience, extending in some cases over many years, must be considered as of a much higher order of accuracy than those above cited:

Captain J. D. Warren, one of the pioneers of pelagic sealing, and for over twenty years personally engaged in the business, says: "Indians rarely lose a seal they strike, and if one escapes, it is always but slightly wounded. . . . . My experience with White hunters is not so extensive as with Indians, but from what I have seen while engaged in sealing, I can say that not over 6 in 100 seals killed by White hunters are lost or escape. . . . . Experienced hunters seldom lose a seal."*

617. Mr. W. Fewings, with three years' experience of seal-hunting on the Pacific coast and Behring Sea, says: "The average number lost does not exceed 6 in 100, and by Indians not 6 in 1,000."*

618. Captain H. F. Sieward, who has been two years master of a sealer, employing in one year Indian hunters and in another White hunters, says: "The Indians lose very few seals, for if the spear strikes the seal is got, and if the spear misses, the seal of course escapes unhurt. . . . . The seals lost by White hunters, after being shot or wounded, do not, on the lower coast, exceed 6 in 100, and on the Alaskan coast and in Behring Sea, not over 4 in 100. On sailing I generally take 10 per cent. additional ammunition for waste shot—that is, if calculating on a catch of 3,000 seals, I would take ammunition for 3,300 shots. That was double the excess the hunters would consider necessary, and I never knew the percentage of waste shot to be used."†

619. Captain William O'Leary, with four years' experience of sealing, in which he sealed into Behring's Sea one year with an Indian crew, and three with White crews, says: "My experience with Indian hunters is that they lose none—at most, a few—of the seals they spear. . . . The number of seals lost by White hunters does not exceed 6 in 100, and many hunters lose much less than that number."‡

Mr. W. Munsie, an owner of sealing-schooners, in 1886, and therefore long before the question of losses by pelagic sealers had achieved the notoriety which it subsequently has, writes thus to the Honourable G. E. Foster, Minister of Marine and Fisheries: "Allow me to contradict a statement made by Special Agent Tingle, of the United States Treasury Department, in which he says that three-fourths of the seals shot in the water sink and are lost. From the experience of our
106 old hunters, I maintain but a small percentage is lost in this way, probably not over 1 in 50. I doubt if the loss is as great as that caused by the rejection of skins after being clubbed by the Alaska Commercial Company on the islands, to which reference is made in the tables of Elliott's report."§

* Parliamentary Paper [C.—6131], London, August, 1890, p. 355.
† Ibid., p. 356.
‡ Ibid., p. 337.
§ Parliamentary Paper [C.—6131], London, August 1890, p. 36.

620. Mr. A. R. Milne, Collector of Customs at Victoria, who has had occasion to make, for official purposes, a special study of the pelagic sealing industry, and to take much sworn evidence from hunters and others engaged in sealing, in summing up his conclusions on the point here in question, writes: "Many erroneous opinions have been given in the American press, and by the paid officials of the Alaska Fur Company, as to the loss of seals by wanton slaughter (as they term it) by our sealers. I have made due and diligent inquiry as to the percentage of seals liable to be lost after being shot, and from what I have gathered it amounts, at most, to only 6 per cent."*

621. Further evidence on this subject, derived from sworn statements obtained by Mr. Milne, with special reference to the last two or three years, is printed in Appendix (H). The following is an abstract of the general statements made:

C. J. Kelly, with two years' experience of sealing, stated his belief that the average number lost is less than 3 per cent.

Captain W. Petit, says that Whites do not lose more than 5 per cent., Indians 1 per cent.

Captain W. E. Baker, states that the proportion of seals lost was not more than 3 per cent.

C. N. Cox, states that the Indians lose 1 per cent., the White hunters 4 or 5 per cent.

Captain T. M. Magnesen believes 3½ per cent. would be a fair average figure for seals lost.

H. Crocker states the loss at 3 to 4 per cent.

George Roberts, with four years' experience, gives 3 to 5 per cent. as representing the proportion lost.

R. Thompson, with two years' experience, also places the loss at 3 to 5 per cent.

A. Laing, with ten years' experience with Indian hunters, states that they do not lose more than 1 in 10.

Captain W. Cox, with four years' experience with Indian crews, states that there is no loss of seals when Indians employ the spear.

622. From information obtained by ourselves on the West Coast, the following brief notes may be given:

Martin Lundberg, with three other practical sealers, possessing no vested interest in sealing, and at the time employed as seamen, and no longer connected with the sealing business, concurred in stating, as to the proportion of seals lost, that if a man should lose two out of thirty killed he would be considered a poor hunter.

623. Judge J. G. Swan, of Port Townsend, Washington, whose familiarity with the sealing industry of the West Coast, and particularly with the Indian interest in sealing, is well known, went so far as to characterize many of the statements made as to great numbers of seals being lost as "scandalous falsehoods." The same gentleman, in a communication subsequently received on this point, writes as follows:

I have seen several Makah Indians who have been here, and they tell me that Indians lose very few seals, whether they spear or shoot them, as they are always so near the seal at such times that they can recover them before they sink. Captain Lavender, formerly of the schooner "Oscar and Hattie," who is a very fine shot, told me that he secured ninety-five seals out of every hundred that he shot. He said that poor hunters, of which he had several on his vessel, would fire away a deal of ammunition and not hit anything, but would be sure to report on their return to the vessel that they had killed a seal each time they fired, but that all the seals sank except the few they brought on board. Captain Lavender was of opinion that not over 7 per cent. of seals killed were lost.

* Ibid., p. 360.

624. On a consultation with the members of the Sealers' Association of Victoria, comprising owners of sealing-vessels and sealing captains, they called special attention and invited inquiry into the matter of the number lost. They explained that when the seals sink after being killed, as they often do, they sink slowly "on a slant," so that it is usually quite easy to gaff them. They further affirmed that the result of the sealing in 1891 was, like that in former years, to show that the loss from this cause averaged below 6 per cent.

625. The captain of the "Eliza Edwards," interviewed at Vancouver, stated, as the result of his experience, that sealing must be learnt like any other business. That "green hands" might lose as much as 25 per cent. of the seals shot, but that with experienced hunters the loss is very small. It might possibly amount to 5 per cent.

107 626. The information on this point, gathered from native sources, has already been referred to in connection with the description of the native modes of hunting, but may here be recapitulated.

Aleut hunters, questioned at Unalaska, say that they never lose a seal if killed, whether shot or speared. Indians of Sitka, when hunting fur-seals, state that they lose sometimes one, sometimes two, out of ten shot. Haida Indians, of Queen Charlotte Islands, state that they very seldom lose seals shot at.

Mr. A. Mackenzie, long familiar with the Haida Indians, says that a very small proportion of the seals fired at by them are lost—"very seldom," "very few indeed." "Some canoes do not lose a single seal the whole season."

Mr. R. H. Hall, of the Hudson's Bay Company, and equally familiar with the Haida and other Indians of the coast, said that "an Indian killing or severely wounding a seal is pretty safe to get it."

Mr. R. Cunningham, of Port Essington, believes that the Tshimsians may lose as many as one in five seals shot. The Makah Indians, of Cape Flattery, informed us that when they speared the seals they practically lost none, but that when shot, a few were lost. In taking fifty seals they might lose one or two, but sometimes would lose none.

627. The statements given above are of course all of a general character, and open to the objections which may be urged against such statements. Those referring to the native loss in hunting, whether derived from the natives themselves or quoted from Messrs. Mackenzie, Hall, and Cunningham, are entirely removed from any suspicion of self-interest. It has been endeavoured, however, still further to elucidate the question here considered by tabulating all the well-authenticated statements referring to the actual numbers of fur-seals shot, and the proportion lost. These, it will be observed, record the actual numerical loss of seals shot and not secured, by over twenty different hunters in various years, the whole number of seals thus accounted for numbering nearly 10,000. Some of these statements have already been published, while others are those obtained in the course of our own inquiries. The tables given below show the results of this method of treatment, and are believed to afford evidence of a very high class, directly referring to the question under discussion.

White Hunters.

Name.	Vessel.	Skins obtained.	Seals Lost.	Loss Per cent.	Year.	Remarks.
1. J. Wilson.....	"Triumph"....	23	1	4.3	1889	First year of hunting.
2. "Hunter".....	"	(over) 60	1	1.6	1889	
3. W. Fewing.....	"Favourite"...	(about)400	25	6.2	1887	Some only "shot at." First year of hunting.
4. "	"Viva".....	(over) 500	(about) 30	6.0	1888	
5. "	"Triumph"....	140	1	0.7	1889	
6. Oscar Searr.....	"Viva".....	(over) 600	(about) 20	3.5	1888	
7. Walter House.....	"Walter L. Rich."	185	5	2.8	1889	First year of hunting; other hunters on schooners lost about same proportion.
8. W. O'Leary.....	"Pathfinder"..	44	1	2.3	1889	
9. Fred. Gilbert.....	" ..	518	14	2.7	1887	First year of hunting.
10. " "	" ..	244	5	2.0	1888	
11. " "	" ..	454	16	3.5	1889	
12. George Howe.....	"Theresa".....	159	(about) 7	4.4	1886	Ditto.
13. " "	"Pathfinder"..	442	(about) 20	4.5	1886	
14. " "	"Penelope"....	618	31	5.0	1887	
15. " "	"Viva".....	734	37	5.0	1889	
16. Thomas Howe.....	"Theresa" and "Pathfinder."	397	(about) 20	5.4	1886	
17. " "	"Penelope"....	510	(about) 30	6.0	1887	
18. " "	"Lily L.".....	316	12	3.7	1888	
19. " "	"Viva".....	587	27	4.4	1889	
20. Albert Bertram...	"Annie C. Moore."	320	21	6.3	1889	Ditto.
21. Captain Jacoby...	"	117	2	1.7	1888	
22.	"Allie Alger"..	613	21	3.4	1883	
23. Martin Lundberg.	" ..	33	1	3.0	188	Quoted as an example of a good day's work.
24. Captain Spring....	"Favourite"...	(about)180	1	0.5	1888	
25. Captain McLean ..	" ...	90	(about) 5	5.5	1888	
26. C. J. Kelley.....	.....	79	2	1.6	1891	
27. Captain W. Baker.	.....	55	1	1.8	1891	
28. "Hunter"	.....	498	17	3.4	1891	
Abel Douglas.....	"May Belle"...	216	.....	.....	.....	
" "	" ...	205	7	3.4	1891	
	Total	9,337	381	4.0		

Nos. 1 to 20, from signed statements given in Parliamentary Paper [C. 6131], 1890. Nos. 21 and 22, from "Relations with Canada," United States Senate, 51st Congress, 1st Session, Report 1530. Nos. 23 to 25 from evidence personally obtained. Nos. 26 to 28 from sworn statements obtained in 1892.

108 *Indian Hunters.*

Native Hunters.	Tribe or Place.	Skins Obtained.	Seals Lost.	Loss Per cent.	Year.	Remarks.
No. 1.....	Sitka	19	4	20.0	.....	
" 2.....	Haida.....	21	0	.....	1890	
" 2.....	"	38	3	8.0	1891	
" 3.....	"	37	0	.....	1890	
" 4.....	" (on Adele).	126	0	.....	1889	
" 5.....	" "	90	3	3.3	1889	
" 6.....	Hailtzak.....	8	2	25.0	1891	
" 7.....	Makah.....	50	1, 2, or none	.....	.....	

Nos. 1 to 7, all from evidence personally obtained.

628. A certain proportion of the seals shot of course escape, and in killing on the islands each year, some are found with encysted shot in the skin or blubber. A few ounces of shot thus obtained was shown to us on the Pribyloff Islands as that collected from seals killed in 1890. This aggregated much less than ½ lb., but placing the amount at 8 ozs., this would give, at 150 pellets to the lb., seventy-five shot gathered from 21,000 seals killed, or at the rate of one pellet to 280 seals. As in most cases several pellets might be found in a single seal, while in other cases shot might be present but not found in skinning and cutting up

the seal, the proportion thus stated probably more than represents the ratio of seals so slightly wounded as to reach and live on the islands in apparent health.

629. It appears to have been very generally taken for granted, on *à priori* grounds, by most of the apologists for the methods of land killing, that the fur-seal does and must sink immediately when shot at sea. Actual experience contradicts this assumption in the manner and to the degree explained above, and it is, therefore, useless to enter at length into the question of the analogy of the fur-seal with other animals in this respect, which has been advanced to show that the fur-seal should not float. Arguments of this kind have been derived particularly from the circumstance that the various species of hair-seal often sink when shot before they can be recovered. It must not be forgotten, however, that the hair-seal belongs to an entirely different group of the Pinnipedia, and is characterized not only by a much heavier osseous framework, but also by a smaller lung capacity in proportion to its weight. Yet even the hair-seal is often shot and secured at sea, where its pursuit is made an industry, and it is only when exceptionally lean that it sinks rapidly.

630. The following notes bearing on this particular subject may be quoted from Mr. J. A. Allen's "Monograph of North American Pinnipeds," which has already been frequently referred to:

"Like other species of the seal family, the harbour seal is very tenacious of life, and must be struck in a vital part by either ball or heavy shot, in order to kill it on the spot." Says Mr. Reeks: "I have been often amused at published accounts of seals shot in the Thames or elsewhere, but which "sank immediately." What seal or other amphibious animal would not do so if "tickled" with the greater part of, perhaps, an ounce of No. 5 shot? He adds that it is only in the spring of the year that this seal will "float" when killed in the water, but says that he has never seen a seal "so poor, which, if killed *dead on the spot*, would not have floated from five to ten seconds," or long enough to give "ample time for towing alongside," supposing the animal to have been killed by shot, and the boat to contain "two hands."

Again, referring to the bearded seal, Mr. Allen quotes Kumlien, as follows:

In July, during the moulting time, their stomachs contained nothing but stones, some of them nearly of a quarter-pound weight. They seem to eat nothing during the entire time of shedding—probably six weeks. Certain it is they lose all their blubber, and by the middle of July have nothing but "white-horse"—a tough, white, somewhat cartilaginous substance, in place of blubber. At this season they sink when shot.

631. No loss occurs at sea from the taking of seals with "stagey" or unmerchantable skins. All those familiar with pelagic sealing who were questioned upon this point agreed as to the fact that "stagey" skins are practically never got at sea, not even in Behring Sea at the season at which the seals upon the islands are distinctly "stagey." The skins taken in the earliest part of the sealing season, in December and January, are sometimes rather inferior, but they do not fall into the general category of "stagey" skins.

632. It would thus appear that the distinctly "stagey" or "shedding" condition of the fur-seal supervenes after a sojourn of some length on shore, and that such sojourn results in a general change of pelage which does not occur in the same marked way when the animals remain at sea. The same circumstance has further some bearing on the question of the possible excursions of the seals from the breeding islands, and on the interchangeability of the seals remaining on or about the islands with those of the general sea-surface, which thus seems to be exceptional, during at least the later summer and early autumn, which is the "stagey" season ashore.

109

(D.)—*Composition of Catch.*

633. By the pelagic sealers and by the Indian hunters along the coast, fur-seals of both sexes are killed, and, indeed, it would be unreasonable, under the circumstances, to expect that a distinction should be made in this respect, any more than that the angler should discriminate between the sexes of the fish he may hook. Even upon the breeding islands, it is difficult for the most experienced natives to distinguish virgin females from young males of corresponding size in the drives,* and in the autumn of 1891, we are informed by an eyewitness, that in endeavouring to secure a female yearling seal alive for the zoological collection at San Francisco, no less than seven male seals were successively captured by the natives, who, judging from the general appearance of the animals, believed them to be females, before one of the requisite sex was obtained! At sea, save in exceptional cases, females can only be certainly detected by an examination of the body when it is brought on board. The fur of the female is equally good with that of the male, and under the conditions under which the hunting is carried on, there is room for no sentimental considerations in favour of either sex. But it is unfortunately the case, that at certain seasons considerable numbers of gravid females are thus killed, and this killing is deprecated by the better classes of the pelagic sealers themselves, not alone on grounds of humanity, but because they see clearly that it is unduly destructive to the industry in which their fortunes are embarked. From communications held with pelagic sealers, there can be no doubt that any equitable arrangement having for its object the minimizing of this particular cause of loss would be favourably received by them. With the natives along the coast it is somewhat different; their traditional code of ethics admits of no period of immunity for any wild animal, and the contingency of future decrease appears to them to be too remote to be taken into their consideration. They are constitutionally observant, and in no degree reticent about the killing of females with young, and the statements on this subject obtained from them may be implicitly trusted.

634. On the question of the general composition of the pelagic catch in respect to sex and age of seals killed, and the special abundance of various kinds of seals in certain parts of the hunting area or at particular dates, evidence varying much as to numerical proportion and often diametrically opposite in bearing may easily be obtained. It is only natural, and is entirely in accord with what might be expected, that the proportions of seals by sexes and ages should be found to differ very considerably in different instances, even in a single year, in conformity with the dates or places in which the greater proportion of any particular catch was secured, and the kind of seals in each case fallen in with. Some landsmen are found to be emphatically certain that nearly the whole of the pelagic catch consists of females, but this does not accord with the testimony of those who are or have been actually engaged in sea-sealing; and while it is not maintained that the evidence of such practical sealers is entirely untinctured by motives of personal interest, it must be evident that these men know more on the subject than any others. Subjoined are quotations or abstracts relating to the composition of the pelagic catch, obtained from what are believed to be trustworthy sources, and in a number of cases derived from statements made over the signatures of the individuals as taken under oath. The

* See "Bull. Mus. Comp. Zool.," vol. ii, Part I, p. 105.

very fact that these statements, though taken at different times, and while varying considerably from the point of view of numerical proportions, tally very well in the main, one with another, is an inherent proof of their credibility.

635. It must not be forgotten, however, in examining these statements, that the complementary information derived from the breeding islands shows that the persistent killing of young males has led of late years to the existence of a very large surplus of females, and that, therefore, the proportion of females to the whole number of seals, whether at sea or ashore, is, at the present time, according to the information obtained by us, quite abnormal.

The term "coast catch," often used in the following statements, must be understood to mean the seals taken to the south of the Aleutian Islands, and, as a rule, to those taken south of any part of the coast of Alaska.

110 The evidence first quoted below, is that obtained from Indian hunters.

The Indians of Neah Bay, accustomed to hunt about Cape Flattery, in the State of Washington, informed us that in the early part of the summer they often found living young in females killed, of which at that season there was a considerable proportion; but later in the summer no gravid females are found, most of the catch consisting of young males or young females. Of the total catch, they thought that about one-twentieth consisted of grey pups. In 1890 seals of this class were abundant, but in 1891 very few.

636. At Nawitti, near the north end of Vancouver Island, the Indians find young in the females killed in the early summer. These are quite strong, and if thrown into the water swim well. One man kept such a young seal alive for six days.

637. At Bella-Bella, the Indians think that the larger proportion of the seals they kill in the early part of the season are females, and these are often with young. Young taken from females often live for three weeks or a month. They drink water, but will not eat, and so probably die of starvation. Some time in May the females disappear, and the greater part of the catch then consists of young males, by which they mean males somewhat smaller than the full-grown female.

638. About the Queen Charlotte Islands, many of the seals killed are females, and a large proportion of these, in the latter part of April and early part of May, are with young. The Indians state that the young taken from the mother might live a couple of hours, but they are invariably killed, as it is believed that if allowed to live the hunters will be unlucky. A White hunter, who had been with the Indians here, stated that he had tried to keep such young, which could, in some cases, swim quite strongly, but that the Indians had begged of him to kill them. Mr. A. Mackenzie, when buying skins for the Hudson's Bay Company at Masset, refused to purchase the skins of unborn pups on any terms; but after a time the Indians found they could sell them to the Chinese, working at salmon canneries on the Skeena River.

639. About Bonilla Island, in the northern part of Hecate Strait, the seals obtained in spring are chiefly females, but after the 1st June these leave, and the catch is then composed of non breeding seals, supposed to be about three years old. The young are often fully matured in the female, and Indians say that they will swim if thrown into the water. The people here have not the same superstition as those on the Queen Charlotte Islands, and have sometimes kept the young seals alive for three weeks or a month. Mr. Lockerby, connected with the Hudson's

Bay Company at Port Simpson, states that the skins purchased there are classed by size, not according to sex, but, so far as he can judge, a large part consists of young males, with a considerable proportion of grey pups.

640. Indians hunting from Sitka, in South-eastern Alaska, often find living young in females killed. These are skinned, and the skins possess some little value.

641. In the eastern part of the Aleutian Islands, so inconsiderable a number of seals are killed in spring or summer, that very few gravid females can be included.

642. The following evidence on this particular subject is that contained in written statements as to the various places of sealing, made by some of the most experienced and intelligent pelagic sealers:

643. William Fewings says: "It is very seldom a female is killed in Behring Sea, carrying her young with her, and out of 1,000 killed on the coast earlier in the season, less than one-third are females carrying their young."

644. Captain J. D. Warren says: "Of the seals taken along the coast, about one-half are females, and of the females, not more than one-half are with young. In Behring Sea, not more than 1 in 100 of these taken by the hunters are females with young, because as soon as the females carrying their young get into the sea they go to the breeding islands or rookeries, and in a few days their young are born. The cows remain with their young till they are quite able to take care of themselves. I do not think that of the seals taken by Indian and White hunters more than 30 per cent. are females actually breeding, or capable of breeding. 'Old bulls,' 'bachelors,' 'two-year-old pups,' and 'barren cows' make up the great majority. Cows actually breeding are very watchful, and while on their voyage northward are ever on the alert, so they are difficult to take. On the other hand, the other classes above named make up the great class of 'sleepers,' from which fully 90 per cent. of the whole catch of hunters is derived. I never saw or heard of a 'cow' having her young beside her in the water, either on the coast or in Behring Sea."

645. Captain William O'Leary says: "About half the seals taken along the coast are cows, and perhaps two-thirds of the cows are with young. Putting a vessel's catch at 400, from 150 to 175 might be cows with young. In Behring Sea the average of cows with young killed will not average 1 in 100, for the reason that as soon as the cows reach the sea they go to the breeding islands, where their young are born."

111 George Howe says: "About one-third of the seals taken on the coast are cows with pup, or capable of being with pup. In Behring Sea I got four cows with pups in them." (This was in a season's catch.)

Albert J. Bertram says: "I got during the season 320 seals. . . . On the coast I got about twenty-five to thirty females with young in them, and in Behring Sea I got six or seven. I never saw a cow with her pup alongside of her in the water."

646. In the sworn statements obtained by Mr. Milne, and already referred to, frequent reference is made to the composition of the catch, both along the coast and in Behring Sea. From these statements the following abstracts have been made:

C. J. Kelly, two years' experience in sealing, found the percentage of females to be always less than that of males.

Captain W. Petit, who seems to have paid particular attention to this matter, says that in 1891 of 765 seals killed, 18 were females carry-

ing young—not quite 2½ per cent. "About 10 per cent. every season are barren cows, and 12½ per cent. grey pups (always males). My catch was more than 75 per cent. males; more males were taken in Behring Sea than in any former year." He further states that in 1886 he took off Barclay Sound, in one day, 104 seals, of which 3 only were females. In 1887, on Portlock Bank, 29 seals were taken in one day; of these 2 were females. "More barren cows are killed than those bearing young."

Captain W. E. Baker's proportion last year was 3 males to 1 female. The percentage of barren females was considerable.

Captain C. N. Cox states that females are more abundant in February, March, and April than at any other time. Very few females with pup are taken in May. Bearing cows are not got in Behring Sea after their young have been born. Of 848 seals taken along the coast by him in 1891, 75 per cent. were males, 15 per cent. were breeding females, and 10 per cent. barren females. In 1889, 90 per cent. of his catch consisted of males.

Captain A. Bissit believes that more males than females are killed, and that more females in proportion are taken in March and April than in other months. His catch in 1891 showed 75 to 80 per cent. of males.

Captain T. M. Magnesen states that females are most plentiful in February, March, and April; they about equal the males then. Near Behring Sea the proportion is about 80 males to 1 female. About half his catch last year was females, 12 or 14 per cent. bearing females, the others barren.

H. Crocker, four years' experience, thinks females are most plentiful from February to May; 80 per cent. of the seals killed are males.

R. Thompson, two years' experience, says that 70 to 80 per cent. of the seals taken are males.

Andrew Laing, ten years' experience, found in his coast catch that 3 in every 5 seals were males; in Behring Sea 4 in every 5 were males. The females include barren cows.

Captain W. Cox, four years' experience, states that females are most abundant in February, March, and April; in February and March there are as many females with young as males. About 65 or 70 per cent. of the seals taken are males, 15 per cent. are barren females, and about 15 per cent. bearing females. Of 2,434 seals taken by him in Behring Sea, about 5 per cent. were females in milk.

Captain Charles Hackett, five years' experience, has observed no difference in the proportion of females in different months. In 1890 about one-quarter of his catch consisted of females; in 1891, about one-half. In a catch of 1,555 seals in Behring Sea, he took only ten females with pup between the 15th July and the last of that month. Got quite a number of barren cows.

Captain C. McDougall, three years' experience, took 1,100 seals in Behring Sea, of which 800 were males. The proportion of barren cows is about one to ten bearing cows in Behring Sea.

Captain A. Douglas, seven years' experience, has not obtained more seals in one month than in another. One or two females in pup are taken during the season in Behring Sea.

Captain S. S. McLean, seven years' experience, got more males than females along the coast; about half and half in Behring Sea. About 5 per cent. of the females taken in Behring Sea are barren. My catch last year (1891) was made up of two parts males and one females.

647. In conferences held with sealers, some additional particulars as to the proportion of females taken were obtained, as follows:

Captain Dod stated that he had taken over 600 seals in Behring Sea, of which less than twenty carried young, and that the schooner
112 "Viva" in 1890 took 2,000 seals in Behring Sea, of which only two were females with young. Captain Baker said that in 1891 on Portlock banks he found males most abundant, consisting of young, medium, and a few full-grown animals.

648. A consultation held with a number of representative pelagic sealers on this particular point elicited the following general statement, which, it is believed, is in entire accordance with the facts in so far as these are known from practical experience, as no degree of reticence was shown in answering direct questions on all points involved:

It is generally admitted that a considerable proportion of gravid females are found among the seals taken in the early part of each sealing season. Such animals are generally fallen in with in more or less diffuse groups, one area of sea-surface being characterized by them, another by young males or by yearlings, a circumstance which may explain the rather varied proportions by sex and age of seals comprised in the catches of different vessels. After about the 20th May, or, at latest, the 1st June, very few females with young are ever taken. The pregnant females then begin to "bunch up," and to travel fast toward Behring Sea, so that in favourable sealing weather (or, in other words, calms and light winds) the schooners cannot keep up with them. After this time, the catch consists chiefly of young males or of barren females.

649. Behring Sea is now usually entered by the pelagic sealers between the 20th June and the 1st July, and in Behring Sea the same conditions hold. The gravid females are well ahead of the sealers, who have been working up the West Coast, and go straight to the breeding islands. By the time the sealers reach the sea, it is practically only the young males and barren, or young and non-breeding, females which remain dispersed over the sea to be taken. At a later date in the summer, a few females in milk, and, therefore, presumably from the breeding places on the islands, are occasionally killed, but no large number. This last fact is the only one which has a direct bearing, or establishes a direct connection, between the economy of the breeding rookeries and the hunting of legitimate pelagic sealers, as distinguished from raiders on the islands, in Behring Sea. The killing of unweaned pups upon the islands, together with other matters bearing on the possible excursions of breeding females to sea, are fully noticed in another part of this report, which should be referred to in this connection.

650. Statements of the most contradictory kind can be quoted on the subject of the composition of the catch made by the pelagic sealers. Doubtless, this varies very much in different cases and in different seasons, but a number of the statements met with are so extreme from one point of view or the other, that they must be supposed to have been largely coloured by interest. The single fact, already referred to, that a certain number of the young males killed upon the islands are found to contain pellets of shot, is sufficient to show that the catch of the pelagic sealers and Indians is not practically altogether composed of females, as some persons would have us believe. The foregoing paragraphs give a general statement of the case, without taking such extreme views on either side into account. It may be added, however, that the excessive killing of young males on the breeding islands may probably, by changing the proportion normally existing between the sexes, have had the result of directly increasing the number of females found and killed at sea in late years. This point is elsewhere treated at greater length.

651. The general conclusion to be derived from an examination of the statements above noted is, that in proportion to the number of skins obtained, that part of the pelagic catch made in the early part of the season, and to the south of the Aleutian Islands, is the most damaging to seal life as a whole, while the skins taken after this date, whether without or within Behring Sea, are obtained at much less proportionate cost to seal life.

652. With reference to the composition of the catch of the pelagic sealers, a note may be added respecting the relative amounts of those portions of the catch made to the south and to the north of the Aleutian chain, known as the "coast catch" and "Behring Sea catch" respectively. These may be represented in tabular form as follows:

Year.	Coast Catch.	Behring Sea Catch (Eastern and Western).
1885	20,389	800
1886	11,921	12,423
1887	8,502	11,764
1888	7,676	16,653
1889	12,371	15,497
1890	21,390	18,165
1891	20,727	28,888

113 653. Evidence has been put forward as to the composition of the catches on shore and at sea, based upon the reports of skins as sorted in the factories in London where the skins are prepared for the market. It is, however, to be borne in mind, that the skins arrive at these factories classed as they were for sale, and the titles used do not necessarily imply the actual source of origin, but rather the kind and quality of the skin.

It is, however, asserted by the experts, that the different localities produce somewhat different skins, which is probable. Thus it is said that while the skins known as "Alaska" (assumed to come from the Pribyloff Islands) and "Copper" (assumed to come from the Commander Islands) are distinguishable, in that the former have as a rule a longer and finer fur, that yet the skins from the two sources are oftentimes identical in quality. Indeed, it would appear that in many cases skins are classed as "Alaska" because they have longer and finer fur, and not because of any known place of origin. As a rule, the "Alaska" skins have come for fifteen years past in much better order than any others. They have been originally better skinned and better cared for all through.

It appears that at the factory, as a matter of fact, they can chiefly tell which are "north-west catch" skins by the obvious marks of shot or spear, which often reduce the market value of a skin by 25 or 30 per cent. But there is nothing to show that such skins were not taken close to or even upon the Pribyloff Islands.

It is also easy, especially after the skins are ready prepared, to recognize the four teats of the female. But, more especially in the smaller skins, the marks of sex are extremely difficult to trace. For instance, in one parcel examined in London, which was marked "faulty," all the skins with the exception of three, were female, and most of them badly shot-marked. But the great majority were young females, giving but little or no evidence of having suckled any young. There was no evidence to show whether these seals were obtained at sea or on the rookeries by raids.

The female skins were also to be distinguished by the superior fineness of the fur, and by its being thinner on the "flanks" or under part than on the back.

(E.)—*Future of the Industry.*

654. As to the probable future of pelagic sealing, which as at present practised has not been in existence for much more than twenty years;—like any other industry depending on the continued existence in suitable numbers of the animal upon which it is based, this may easily be overdone. The regulations under which the slaughter of fur-seals on the Pribyloff Islands has been carried on for the past twenty years or more have on the average been such as to require killing there to be pushed to and beyond the maximum figure which the seal life frequenting these islands could afford, without showing evidences of rapid decrease. The arrangements have been, in fact, so framed as to make the lessees of the Pribyloff Islands as far as possible the sole beneficiaries of the entire eastern side of the North Pacific, under the belief, that by the possession of the breeding islands it was possible to monopolize the industry. The methods upon the islands had themselves resulted in decrease when the growth of the independent industry of pelagic sealing began still farther to affect seal life, and, as elsewhere shown, co-operated in producing a decrease at a more rapid rate in late years.

655. The hypothetical question may here be put: If all killing should be stopped upon the breeding islands, and the pelagic industry be left untrammelled by regulations on the high seas, what would be the ultimate effect on seal life? Experience directly obtained with reference to the fur-seal is here entirely wanting. The history of all the depleted breeding places of other parts of the world clearly points to a single cause of damage, viz., unrestricted and barbarous killing on shore upon the breeding grounds. Analogy with the history of other maritime industries, such as those conducted for ordinary food fishes, becomes, however, in the case supposed, directly apposite. Employing such analogies, it may be affirmed that so long as the industry continues to be profitable, a greater number of vessels will each year be employed in it; but that before long a point will be reached at which, in consequence of the greater competition, the ever-increasing wariness of the seal, and a reduction in total numbers,—the profits will diminish, unremunerative voyages will frequently be made, and a reaction will occur such as to allow a renewed increase of the animal. Such an automatic principle of regulation appears to be necessarily inherent in the seal fishery as in other fisheries, but just what the average annual catch might number when this particular fishery reached its level of stability, it is of course impossible to say. It is not likely, however, that it would show a continued decline so serious as that which has affected the whale fishery, for this is due to special causes which are well known; and, under the conditions which have been assumed for the fur-seal fishery, the breeding places of the animal would be continuously exempted from attack.

114 656. One of the most obvious and generally applicable methods of controlling pelagic sealing would be the general adoption of rules against the employment of specially destructive methods, and such rules might be arranged by international consent as applicable to certain defined tracts of the high seas, in the manner which has been advocated in connection with the subject of the "purse" seine in the mackerel fishery of the Atlantic coast.* Thus, the use of vessels with

* See "Report of Department of Fisheries," Canada, 1890, p. 70, and Appendix IX, p. 14.

steam power might be prevented, as well as that of rifles in shooting the seals. Nets have scarcely been used along the eastern part of the North Pacific in the fur-seal fishery, and it is improbable that they can be advantageously employed anywhere beyond the three-mile limit. The only known case in which nets have actually as yet been employed occurred in 1888, when it is on record that the Alaska Commercial Company fitted out two schooners, privately owned, to net seals in the passes leading from Behring Sea through the Aleutian Islands. One of these schooners is stated to have obtained 700 grey pups which were sold to the Company at the rate of 2 dol. 50 c. per skin.* Netting, however, forms no part of legitimate pelagic sealing, and might well be altogether prohibited.

657. The use of the shot-gun for the purpose of killing seals at sea has now become so nearly universal, that it is doubtful whether it can be changed without an undue interference with the now established industry. The loss of seals thus shot is, as already shown, small, and there is therefore no cogent reason why this practice should be discontinued. All the evidence shows that the loss when seals are speared by the Indian hunters is practically *nil*, but to restrict killing to spearing would necessarily be to preclude all but skilled Indians from engaging in it.

658. Any such regulations applied to the use of specially destructive engines, would have the effect, under the assumed conditions, of increasing the aggregate number of seals which would exist when what has been referred to the level of stability is reached.

IV.—Control and Methods of Sealing on the Pribyloff Islands, their Nature and Results.

(A.)—*Methods employed.*

659. The system adopted for the regulation and working of the Pribyloff Islands by the United States Government, when its control had been established, and after the irregular and excessive killing which at first followed on the withdrawal of the Russian authorities, was substantially that which had gradually been introduced by the Russians, as the result of their prolonged experience, but with one very important exception. This exception related to the number of seals allowed to be killed annually. The number was at this time suddenly and very largely increased, being in fact more than doubled, as is elsewhere pointed out in detail; and while the experience of many former years showed that the Russian system, with a limited annual killing, might be maintained with a reasonable certainty of the continued well-being of the breeding grounds, it had in fact, according to the best available information, resulted in a gradual and nearly steady increase in number of seals. The much larger number permitted to be killed under the new regulations at once removed the new control into the region of experiment.

660. Theoretically, and apart from this question of number and other matters incidental to the actual working of the methods employed, these were exceedingly proper and well conceived to insure a large continual annual output of skins from the breeding islands, always

* Parliamentary Paper [C.—6131], London, August 1890, p. 356.

under the supposition that the lessees of these islands could have no competitors in the North Pacific. It was assumed that equal or proximately equal numbers of males and females were born, that these were subject to equal losses by death or accident, and that, in consequence of the polygamous habits of the fur-seals, a large number of males of any given merchantable age might be slaughtered each year without seriously, or at all, interfering with the advantageous proportion of males remaining for breeding purposes.

661. The existence of the breeding rookeries as distinct from the hauling-grounds of the young males, or holluschickie, was supposed to admit, and did in former years to a great extent admit, of these young males being killed without disturbing the breeding animals. The young seals thus "hauling" apart from the actual breeding grounds were surrounded by natives and driven off to some convenient place,
115 where males of suitable size were clubbed to death, and from which the rejected animals were allowed to return to the sea. The carcasses were skinned on the killing ground, the skins salted, and at a later date bundled in pairs and shipped, with such duplication or checking of count as might be supposed to afford guarantees to the agents of the Government and to the lessees that the interests of both were fairly treated.

662. There can be no doubt that if the number permitted to be killed had been fixed at an amount so low as to allow for exceptional and unavoidable natural causes of interference with seal life, and if it had been rearranged each year in conformity with the ascertained conditions, killing might have been continued without general damage to the seal life of the Pribyloff Islands, and very probably even with a continued gradual increase in numbers of seals resorting to the islands up to some unknown maximum point. Such results might have followed, notwithstanding the practical imperfection which clearly attached in execution to these theoretically appropriate methods, and in spite of the important change from natural conditions which any disturbance in proportion of sexes involved, if the demands made in the matter of annual take had been moderate; but when the number fixed for killing resulted, as has been shown, in an average slaughter of over 103,000 seals, it bore so large a proportion to the entire number of animals resorting to the islands as to lead necessarily in the long run to serious diminution. This decrease continued, on the whole, in an increasing ratio, being due not only to the actual number of seals slaughtered, but also to the numbers lost in various ways incidental to the methods of control and *modus operandi* on the islands, which loss, though formerly a matter of minor importance (because counted against a large annual surplus), in the face of the greatly decreased numbers, became a very serious addition to the total of diminution. In short, from a transcendental point of view, the methods proposed were appropriate and even perfect, but in practical execution, and as judged by the results of a series of years, they proved to be faulty and injurious.

663. Summing up the records as to the number of seals killed on the Pribyloff Islands, Professor J. A. Allen writes as follows:

In this year (1822), it was ordered that young seals should be spared each year for the purpose of keeping up the stock. This order was so honestly enforced, that in four years the number of seals on St. Paul's Island increased tenfold. The number annually taken these years was only 8,000 or 10,000, instead of 40,000 to 50,000, the number formerly killed yearly. Subsequently, the killing was allowed to greatly increase, which prevented any augmentation in the number of seals. In 1834, the number allowed to be killed on St. Paul's Island was reduced from 12,000 to 6,000. After this date the conditions of increase were more carefully studied and more care-

Whatever may have been the detailed history of the seal interests on St. Paul in the intervening years, the fact that in 1879 it became necessary for the first time to extend the area of driving so as to include Zapadnie and Polavina rookeries, or the hauling grounds adjacent to them, shows conclusively that a great change for the worse had already occurred at that date. This cannot be explained by any theory of the mere reduction in number of redundant young males, for even if it be admitted that seals of this class were to be found in excessive numbers after the slaughter of 1868 (which is not probable), the normal ratio of such males resulting from any logically permissible killing should have been reached long before this time.

685. Many years ago, under the Russian régime, a small native settlement was situated near the rookery ground of Polavina, and seals were regularly killed there. Traces of this old settlement may still be seen, but it has probably been abandoned since the time of the "Zapooska," or intermission of killing which took effect in 1835, at which time most of the "natives" were removed from the Pribyloff Islands. From information gained on the islands, it appears that in or about the year 1879 the salt-house now employed at Polavina was first built, and that driving has been annually practised both from Polavina and Zapadnie ever since, but with much increasing persistency in later years.

686. The time at which the decrease in killable seals began to make itself actually apparent in the acknowledged difficulty in obtaining the annual quota of skins is thus pretty definitely fixed by circumstances, but other corroborative information with a similar meaning is now not wanting. Colonel J. Murray, Assistant Treasury Agent, in his Report for 1890, writes: "The whole truth must, nevertheless, be told, and that is, that the seals have been steadily decreasing since 1880."* The older and more experienced natives, conversed with on St. Paul Island, after describing the great abundance of seals at the time the United States first took possession of the islands, stated that the decrease became very marked in 1882 or 1883; arriving at these dates by counting back from the actual year.

119 687. One accessory cause of the decrease so plainly shown at this particular time, is perhaps to be traced in the great mortality of young, due to unfavourable weather in 1876, which would naturally be making itself apparent on the hauling grounds in 1879 or 1880. (§ 817.)

688. It is thus made evident that the decrease of young males, constituting the killable class, had reached such proportions as to hamper the lessees in taking their permitted number of skins, and to disquiet the natives, before the pelagic sealing industry had attained any considerable development, and some years before it could, under any valid hypothesis, be supposed to be accountable for any such result. Although three or four schooners were tentatively engaged in pelagic sealing off the coast of British Columbia in the years 1879–83, till the year 1883 the fleet did not include nine schooners in all, and the first of these schooners did not enter Behring Sea until 1884.

689. The United States sealing fleet, in the corresponding years, was of similar small dimensions, and, though one vessel is known to have sealed in Behring Sea as early as 1881, the aggregate pelagic catch was, comparatively speaking, so small in these years, that it may safely be left out of consideration.

*Senate, Ex. Doc. No. 49, 51st Congress, 2nd Session, p. 8.

690. Of these persons questioned by us, almost all who possessed a familiarity with the Pribyloff Islands, including several who had previously been connected with the Alaska Commercial Company, were, in 1891, found ready to admit that in 1885 and 1886 the decrease in the number of seals to be found on the islands, and particularly that of killable seals, had become very striking. It was not, however, till 1888, that the existing state of affairs found some recognition in the official reports, when Dr. H. H. McIntyre, then agent for the lessees on the islands, admitted to the Congressional Committee on the Fur-seal Fisheries of Alaska that the seals had decreased since 1882, and that it had become difficult to obtain the full quota of marketable skins, adding: "There are at present, in my opinion, too few bull seals to keep the rookeries up to their best condition."*

691. In the years 1886, 1887, and 1888, the annual pelagic catch in Behring Sea probably did not exceed 17,000, being thus less than one-fifth of the slaughter upon the islands; and even if it be admitted, for the sake of argument, that the killing of this number at sea was more injurious than that of a like number on shore, such alleged injurious effect could scarcely have begun to make itself apparent on the rookeries for three or four years after it took place.

692. The conditions obtaining on the Pribyloff Islands in the last three years have been so fully referred to in the present report, and in various reports made by the officers in charge, that they scarcely require detailed recapitulation in this particular connection. In 1889, Mr. C. J. Goff reported an alarming shrinkage in the rookeries and hauling grounds; and though the full quota was obtained, this was only done by lengthening the killing season to the end of July, and greatly lowering the standard size of seals killed. In 1890, being the first year of the North American Commercial Company's lease of the islands, the number to be killed, in view doubtless of Mr. Goff's previous report, which has not been published, was reduced to 60,000. But killing was stopped by Mr. Goff, in charge of the islands, at the usual date of the 20th July, at a time when, in consequence of the scarcity of killable seals, only about one-third of that number had been secured. In the same year Mr. Elliott re-examined the islands, and though his report has likewise remained unpublished, a summary of his conclusions has appeared, from which citations have already been made. He states clearly that the injury to the rookeries, he now believes, "set in from the beginning, twenty years ago, under the present system."†

693. In 1891, the result of our own examinations, as well as the evidence collected by us from all available sources, lead us to believe that some at least of the breeding rookeries are in a better condition than in the previous year, while in none of them is any further deterioration noticeable—a circumstance which fully justifies the action taken in restricting the catch in 1890, and clearly indicates that the rookeries, however reduced in numbers, possess an abundance of recuperative energy.

(C).—*Standard Weights of Skins taken.*

694. Closely connected with the foregoing notes, and of interest in showing that the required number of young male seals has not been killed of late years upon these islands without great detriment to
120 their seal life, is the fact that the standard of weight of skins has

* House of Representatives, 50th Congress, 2nd Session, Report No. 3883, pp. 116 to 119.

† Parliamentary Paper [C.—6368], London, 1891, p. 57.

been from time to time lowered so as to enable younger animals to be taken, and that even many yearlings were included in 1889.

695. In 1890, the Government tax was suddenly raised from 2 dol. 25 c. to 10 dol. 25 c. the skin under a new lease, and it became at once no longer profitable to take very smalls kins. It was in part in consequence of this, and in part as a direct result of the complete sweep of the killable seals made in 1889, the last year of the expired lease, that the extremely unfavourable showing in 1890 was due. Continuous killing had left very few young seals to come forward to properly killable ages in 1890; and thus Mr. Goff notes that, of the seals returning to the islands in that year (besides those actually on the breeding rookeries), nearly all were the young of the preceding year.

696. This lowering of the standard weight of skins appears to have commenced as early as 1883; for, in 1888, Dr. H. H. McIntyre says: "In 1883 the sizes decreased, and have constantly decreased ever since. Last year they sent an urgent appeal to take larger skins, as the sizes were running down; but we were unable to respond, and during the present year the catch averages still smaller in size."*

697. From information obtained from trustworthy sources on the Pribyloff Islands, it appears that the reduction in the standard weight of accepted skins was well known and recognized there in 1886 and 1887; and that from 1888, inclusive, many 5-lb. skins were taken, and all 2-, 3-, 4-, and 5-year-old seals were accounted marketable; while in 1889 about 40,000 very small skins were taken to complete the quota, averaging probably about 4 lbs., and in some cases running down even to 3½ lbs.

698. Thus, arriving at this conclusion from the known weight of skins of seals of various ages, it appears that, in 1889, even yearling seals were killed in large numbers. One noteworthy result of such killing requires special mention, *i. e.*, that in consequence of the recognized great difficulty (amounting in most cases to absolute impossibility) of distinguishing virgin females from young males of corresponding size, it is quite certain that large numbers of females as well as males must have fallen under the club in these years of reduced standards, and that the protection supposed to be afforded to females by the methods employed on the islands was, in consequence, necessarily rendered largely fictitious.

699. Referring specially to the catch of 1890, Mr. Goff writes: "There have been no 2-year-olds of an average size turned away this season; they were all immediately clubbed to swell the season's catch."†

700. Thus, even excluding the extreme case afforded by the year 1889, it is apparent that all male seals except yearlings and full-grown sea-catchie, together with many virgin females, have, on the breeding islands, been considered fair game by the sealers for several years past, and, with this circumstance in mind, the cause of the dearth of males upon the rookeries is not far to seek. Not content with taking the young males at the year, or within the period of two years in which the skins are most valuable, the killing was carried back into the more numerous ranks of the very young animals upon which the supply of suitable skins for future years depended, while, at the same time, other males, which had escaped previous slaughter, and become too old to afford first-class skins, were not allowed to take their places upon the breeding grounds, but were also killed to increase the catch.

* "Fur-seal Fisheries of Alaska," House of Representatives, 50th Congress, 2nd Session, Report No. 3883, p. 118.

† Senate, Ex. Doc. No. 49, 51st Congress, 2nd Session. v. 5.

701. The facts above cited afford a connected train of evidence, showing the gradual reduction and deterioration in condition of seal-life upon the Pribyloff Islands, altogether apart from the estimates of the total number of seals made at various times, and as we believe of a more trustworthy character than these.

702. As to the comparative conditions in the years 1890 or 1891 with that of the early years of the United States' control of the islands, no accurate information can be given. The result of our investigations and study of the subject in all its bearings leads us, however, to believe that the aggregate numbers given for these earlier years have been greatly in excess of the facts, and that while the latest estimates published may not be too small, the total amount of shrinkage has been very greatly exaggerated by means of comparisons instituted between these and the excessive estimates of earlier times. Because of this want of trustworthiness in the first estimates, therefore, any present estimates of a general character, however carefully made, and though interesting in themselves, cannot be accepted as *criteria* of value in relation to the question of the actual amount of decrease.

703. The ease with which fictitious reports may be built up on imperfect or ill-considered *ex parte* evidence is illustrated by a remark made by Elliott, who writes: "I noticed in this connection a very queer
121 similarity between the sealers on St. Paul and our farmers at home; they, just as the season opens, invariably prophesy a bad year for seals and a scant supply; then, when the season closes, they will gravely tell you that there never were so many seals on the island before. I was greeted in this manner by the agents of the Company and the Government in 1872, again in 1873, and again in 1874. I did not get up to the grounds in 1876 soon enough to hear the usual spring crooking of disaster; but arrived, however, in time to hear the regular cry of, 'Never was so many seals here before!'" *

(D.)—*Driving of Seals.*

704. One of the most important points connected with the method of taking fur-seals on the Pribyloff Islands, is that of the driving from the various hauling grounds to the killing grounds. However safeguarded or regulated, the method of driving fur-seals overland for considerable distances must be both a cruel and destructive one. Active and graceful as a fish in the water, the fur-seal is at best clumsy and awkward in its movements on land, and though it is surprising to note at how good a pace it can, when forced to do so, travel among the rocks or over the sand, it is also quite evident that this is done at the expense only of great effort and much vital activity, as well as at serious risk of physical injury. A short shuffling run is succeeded by a period of rest, and when undisturbed, all movements on shore are carried out with the utmost deliberation and frequent stoppages. But when a herd of seals, half crazed with fright, is driven for a distance of a mile or more from the hauling ground to some killing place, already pestilential with the decaying carcasses of seals previously killed, it unavoidably, and however frequently the animals may be allowed to rest, entails much suffering. When the weather is at all warm, or when the seals are pressed in driving, individuals frequently drop out and die of exhaustion, others again are smothered by the crowding together of the frightened herd, and it is not infrequent to find some severely wounded by bites ruthlessly inflicted by their companions when in a high state of nervous

* United States Census Report, p. 165.

tension. It appears also, from information obtained on this subject, that in warm weather seals, during a drive, occasionally pass into a state of violent spasmodic activity, which is aimlessly maintained till death ensues. Under such circumstances, drives have not infrequently had to be abandoned.

705. On St. Paul Island, the longest drives now practised are those from Polavina to the vicinity of the salt-house near Rocky Point, and from Tolstoi to the village killing grounds. These are about equal in length, and each not much less than two miles. On St. George, the longest drives are from the Great Eastern Rookery and from Starry Arteel Rookery to the village killing grounds, each being about three miles in length, the time occupied in driving being from four to six hours, according to the weather. Under the Russian régime much longer drives were made, and in the curtailment of these a very considerable improvement has been effected, but the essentially injurious features of the drive remain the same.

706. On Behring Island, of the Commander group, the drives are short, the longest being about one and a half miles, from the South Rookery. On Copper Island, on the contrary, the drives generally extend across the island, and are from three to four miles long, very rough, and crossing one or more intervening steep ridges. These drives must be much more trying to the seals than any now made upon the Pribyloff Islands, and are, in fact, only rendered possible by extreme caution on the part of the drivers, and by the expenditure of much time.

707. If it were possible to drive only those seals which it is intended to kill, little exception could be taken to the method of driving in the absence of any better method, but the mingling of seals of varied ages upon the hauling grounds from which the drives are taken, even under the original and more favourable conditions of former years, renders it necessary to drive to the killing place many seals either too young or too old to be killed. It is sometimes possible to "cut out" from the drives many of these unnecessary individuals *en route*, and great care is exercised in this respect on the Commander Islands, though little appears to have been practised on the Pribyloff Islands.

708. It admits of no dispute that a very considerable impairment of the vital energy of seals thus driven, and eventually turned away from the killing grounds, occurs, altogether apart from the certainty that a proportion of such seals receive actual physical injuries of one kind or another, but this appeared to have been recognized on the Pribyloff Islands only within the past two or three years. The circumstance which has called particular attention to this source of injury to
122 seal life is the greatly increased proportion of ineligible seals which have now to be driven up in company with the diminishing quota of "killables." It is unnecessary to quote authorities at length on this subject, but a single citation from Mr. Goff's Report of 1890 will be sufficient to show its general character. Mr. Goff writes:

> We opened the season by a drive from Reef rookery, and turned away over 83½ per cent. when we should have turned away about 15 per cent. of the seals driven, and we closed the season by turning away 86 per cent., a fact which proves to every impartial mind that we were redriving the yearlings, and considering the number of skins obtained, that it was impossible to secure the number allowed by the lease, that we were merely torturing the young seals, injuring the future life and vitality of the breeding rookeries, to the detriment of the lessees, natives and Government.*

709. In other words, many of the seals turned from the killing ground on one occasion, return eventually to the hauling-grounds, and may

* Senate, Ex. Doc. No. 49, 51st Congress, 2nd Session, p. 4.

thus be driven and redriven throughout the entire killing season, if they do not meanwhile succumb under the strain.

710. Owing to the restriction imposed on the killing of seals in 1891, we were ourselves able to witness the effect of two small drives only, one on St. George, the other on St. Paul. Both these drives were made from the grounds nearest to the village killing places, and were therefore short. The weather was favourably cool, and the actual driving from the rookeries to the vicinity of the killing ground was accomplished with all requisite care and deliberation. Notwithstanding this, the seals were in both cases evidently very much exhausted and completely witless from fear. The animals let go from the killing grounds at St. George set out, when released, in small groups towards the shore, not far off, but from weakness were unable to go more than a few yards at a time; while some of them, notwithstanding their terror, were unable to keep up with the rest, and simply lay helpless upon the ground. On drawing the attention of one of the gentlemen superintending the killing to this, he remarked that it was nothing unusual, that, in fact, they not infrequently remained thus in the immediate vicinity of the killing ground for several days before recovering.

711. Much the same observations were made in the case of a drive on St. Paul Island, but it was noticed here that 100 or 200 of those set free, after slowly making their way for 500 or 600 feet, remained in an exhausted condition upon the grassy bank overlooking the northern end of Zoltoi sands, and, on the evening of the following day, many of them were still lying together at the same place without having made any effort to reach the sea, which was not over 200 feet distant.

712. Incidental proof of the disastrous effects of driving may be seen along any of the routes ordinarily taken in the significant frequency of skeletons and bones around each rough and rocky place that has to be passed over in the course of the drive. It is of course difficult, if not impossible, to say with certainty in individual cases, to what extent this ordeal of driving may prove permanently detrimental to the animals driven. It may, however, be worth noting that Veniaminov, as long ago as 1842, quoted the natives as authority for the statement that the seals thus spared "are truly of little use for breeding, lying about as if outcasts or disfranchised." *

713. Elliott, in his published summary of his investigation on the islands in 1890, gives various reasons for arriving at a similar belief, and sums these up as follows:

> Therefore, it now appears plain to me that these young fur-seals which may happen to survive this terrible strain of seven years of driving overland are rendered by this act of driving wholly worthless for breeding purposes; they never go to the breeding grounds and take up stations there, being wholly demoralized in spirit and in body. With this knowledge, then, the full effect of the driving becomes apparent, and that result of slowly but surely robbing the rookeries of a full and sustained supply of fresh young male blood demanded by nature imperatively for their support up to the standard of full expansion. †

Captain Lavender, Assistant Treasury Agent, in his Report for the same year, and speaking particularly of St. George Island, adopts a similar view on the matter, saying:

> All the male seals driven should be killed, as it is my opinion that not over one-half ever go back upon the rookeries again. ‡

714. Mr. Elliott, in the publication which has just been quoted, further

* Translation by Elliott in United States Census Report, p. 141.
† Parliamentary Paper [C.—6368], June 1891, p. 57.
‡ Ibid., p 21.

summarizes his ideas as to the causes of the present reduced condition of Pribyloff Island rookeries in the two following paragraphs:

1. From over-driving without heeding its warning first begun in 1879, dropped then until 1882, then suddenly renewed again with increased energy from year to year, until the end is abruptly reached this season of 1890.

123 2. From the shooting of fur-seals (chiefly females) in the open waters of the North Pacific Ocean and Behring Sea begun as a business in 1886, and continued to date.*

715. It will be observed, however, that, even according to this statement, the overdriving began, in consequence of marked diminution, some seven years before it is alleged that pelagic sealing "began as a business."

716. As already indicated, all the evils incident to 'driving' in any form became greatly intensified when, with a diminished number of killable seals, the attempt is still continued to obtain a large yearly number of skins. This occurs not only because of the driving and redriving above referred to, but also in consequence of the fact, that under such circumstances the remaining killables lie very close to the breeding rookeries, so that it is no longer possible to make drives without disturbing the rookeries themselves. Thus, it has occurred that, in late years, considerable and increasing numbers of breeding females have been driven to the killing grounds with the killables, though when recognized there in the process of selecting for killing, they have been released. The probable special effect of such treatment of females, as well as the fact that in the disturbances caused upon the breeding rookeries, a certain number of the young are almost certain to be killed, have been already noted.

717. Speaking of the years 1872–74, and in connection with the driving of seals, even at that time, Elliott makes the following remarks: "It is quite impossible, however, to get them all of one age without an extraordinary amount of stir and bustle, which the Aleuts do not like to precipitate; hence the drive will be found to consist usually of a bare majority of three- and four-year-olds, the rest being two-year-olds principally, and a very few, at wide intervals, five-year-olds, the yearling seldom ever getting mixed up."†

718. Referring particularly to his experience in 1869, Captain Bryant writes: "At the close of this period the great body of yearling seals arrive. These, mixing with the younger class of males, spread over the uplands and greatly increase the proportion of prime skins, but also greatly increase the difficulty of killing properly. Up to this time, there having been no females with the seals driven up for killing, it was only necessary to distinguish ages; this the difference in size enables them to do very easily. Now, however, nearly one-half are females, and the slight difference between these and the younger males renders it necessary for the head man to see every seal killed, and only a strong interest in the preservation of the stock can insure the proper care."‡

719. The meaning of these remarks and their bearing on the possibility of restricting the killing on the islands to males, becomes clear when it is remembered that the external genital organs of the male do not become distinctly obvious till about the third year of its age,§ and particularly so when it is remembered that even as long ago as 1872–74

*Parliamentary Paper [C.—6368], June 1891, p. 56.
†United States Census Report, p. 72.
‡"Bull. Mus. Comp. Zool.," vol. ii, Part I, p. 105.
§"Fishery Industries of the United States," vol. i, p. 108.

the "major portion of the catch" consisted of two-and three-year-old seals,* while at other times even yearlings have been killed.

720. In addition to the injury caused by the physical strain of driving, its probable effect on the mental organization of a naturally timid and somewhat intelligent animal like the fur-seal must be great. The killing grounds themselves are always strewn with the carcasses of former victims in various stages of decomposition, and even in the small drive witnessed by us on St. George Island, the various "pods" of seals, including both those turned away and those killed, were actually driven over and among numbers of putrid bodies, by which the whole atmosphere in the vicinity was infected. It is believed, in fact, that this special feature of the driving is responsible to a large extent for the increasing disinclination of the seals to remain upon the breeding islands, a new but not unnatural tendency specially noticed and reported on in regard to the Commander Islands, and evidently still further operative on the Pribyloff Islands.

721. Reviewing, then, the subject of driving as a whole, and without laying stress on the more extreme statements which have been made as to its deleterious effects, it is quite evident that even if a small measure of the injury referred to this cause actually happens, the proportion of loss of seals to the whole number of skins obtained on the Pribyloff Islands, due to this one cause, must very considerably add to the waste of about 7 per cent., which is admitted by the official figures. The aggregate loss incurred is thus the result of various causes, which together involve the killing of many seals which ought not to be killed, and it is evident that the methods of driving and killing on the Pribyloff Islands, as now practised, are susceptible of very great improvement.

124 (E.)—*Protection of Rookeries from Disturbance.*

722. Reverting to the general question of the management of the seal industry of the Pribyloff Islands, it is conceded by every one that the most important single matter is the safeguarding of the breeding rookeries from disturbance of all kinds. Generally speaking, the system adopted on the islands has this end in view, but in addition to the specific disturbance caused in the ways already mentioned, other and uncalled for effects of the same kind have been and are produced in consequence of a certain want of discipline and vigilance. Chief among these is the raiding upon the shores of the islands, which might and should be stopped by efficient protection. This is referred to at greater length below. Some of the means adopted in the government and preservation of the Commander Islands have already been alluded to, and nothing is more obvious to any one comparing the conditions on the Pribyloff and Commander Islands than the greater efficiency of the general control of the latter. This is particularly notable in the superior discipline maintained among the natives, who, as a direct corollary of their favoured position as participants in the proceeds of the islands, are understood to be entirely at the service and under the orders of the Superintendent on the islands. The appearance of vessels in the offing is reported to head-quarters with the utmost promptitude, as noted in the case of our own arrival both on Copper and Behring Islands. The seals are more carefully assorted before being driven to the killing grounds than on the Pribyloff Islands, and the killing of young seals

*United States Census Report, p. 77.

for native food has been prohibited now for seventeen years. A fine of 100 roubles is exacted in the case of each female accidentally killed, with other such similar precautions. The methods taken to prevent the disturbance of seals upon the rookeries by smoke have already been alluded to.

(F.)—*Native Interests on the Islands.*

723. The condition of the Aleuts of the Pribyloff Islands has undoubtedly been much improved by their connection with the sealing industry, but it is difficult to see on what grounds the special advantages of a material kind afforded to these particular people as distinguished from others of the same race, and partly at the expense of interference with the rights of hunting of those inhabiting the Aleutian Islands, can be advanced as a valid argument in favour of the perpetuation of a commercial monopoly of fur-sealing. The Aleuts on the Pribyloff Islands are not natives of these islands in any true sense, but were brought thither by the Russians for their own convenience, and to afford the labour necessary for sealing. The actual circumstances of their existence on the islands are unfavourable to their vitality, as evidenced by the fact that the death rate is higher than the birth rate, so that if additions had not been made from time to time from the Aleutian Islands, in conformity with the requirements of the lessees, the number now remaining would be insignificant. These people are, moreover, now in the majority of cases half-breeds, with often a notable preponderance of "white blood." As it is, the entire population of the Pribyloff Islands, according to the Census of 1890, amounts to but 303 persons, and therefore the question of their disposition and maintenance cannot be regarded as a very embarrassing one, or one which should be allowed to enter seriously into discussions as to the means appropriate for the preservation of the fur-seal, or into the important questions connected therewith.

724. It is also clear that the so-called natives of the islands, though under ordinary circumstances provided for in certain respects by the lessees according to legal arrangement, have in past times not always been among the first objects of their solicitude. Many allegations as to the ill-treatment of the natives are to be found in the Congressional Reports on the Alaska Commercial Company and on the Fur-seal Fisheries of Alaska, while a general indictment of the treatment of the natives by the Company by A. P. Swineford, Governor of Alaska, is made so lately as in his Report for the year 1887.*

725. A single instance, to which it happened that our attention was drawn, may be cited for the purpose of showing that the natives, even in recent years, received no more than strictly "commercial" treatment. This refers to the allowance of coal made to them. The fuel to be obtained on the islands is confined to small quantities of drift-wood, supplemented by seal blubber, or oil from seals or sea-lions, and naturally proves insufficient for the requirements of a long and inclement winter. It was therefore stipulated in the original lease that sixty cords of fire-wood should be furnished annually for the natives on the two islands. For this, 60 tons of coal was afterwards substituted, and the annual allowance for St. Paul Island was fixed at
125 40 tons. The supply thus furnished, being at the rate of about 1 ton per family each year, was naturally, and even with such

* Page 31, *et seq.*

small local additions as could be made, insufficient, and when exhausted the people often found it necessary to purchase more coal from the Company, of which the price was fixed at 30 dollars (6*l.*) per ton!

726. This particular abuse has fortunately been remedied under the present lease, for in 1890 the amount of coal for St. Paul was increased to 50 tons, and in 1891 the Government stipulated that 100 tons should be provided for the same island, where there are now only thirty-eight families. The more liberal provision thus made, however, tends to show very clearly how insufficient that previously accorded actually was.

(G.)—*Raids.*

727. In forming an adequate estimate of the number of seals killed from time to time in the North Pacific Ocean, and especially on the Pribyloff Islands, it is necessary to take into consideration the numbers taken by "raids," an absolutely illegal form of seal killing, which has for years past been in active operation.

728. This form of sealing has distinct historical connection with the original seal hunting of the South Seas in the latter years of the last and the earlier years of the present centuries. There seal hunting is and was conducted entirely by the crews of vessels landed on various islands or reefs where seals were to be found, the seals being shot or clubbed on shore, and the skins shipped away in the vessels.

729. Such a form of sealing was obviously the most destructive that could be devised. The seals are easily herded together on shore by very few men, and can be driven slowly inland, and there guarded until, if need be, every single one of those thus herded is killed. But in the process of herding them together on the beaches thousands upon thousands of seals around are and must be stampeded, and in their wild rush to the sea not only do they do themselves much physical injury, but they overrun the smaller seals, and especially the pups, that chance to lie in their path. We have ourselves seen the evil after-effects of such rushes in the corpses of pups lying thick along such tracks. Moreover, in this form of killing it is usually the plan to pay no regard whatever to sex, age, or condition, and certainly females are not spared.

730. In addition to this, the raiding schooners make an abundant catch along the rookery fronts, where thousands of seals, and especially of females in milk, habitually disport themselves, and even play around any passing boat. The consequent shooting by the raiders greatly disturbs, scares, and scatters the females and males on the breeding rookeries close by. There thus seems to be no limit to the numbers of females and other seals that may be easily taken or destroyed by schooners cruizing close in shore.

731. Raiding is a purely piratical and illegal form of sealing when carried on along shores over which Governments have extended their sovereignty, and particularly where regulations have been established for the preservation of the fur-seal.

732. At the present time, this illegal and destructive practice is carried on in various parts of the South Seas—for instance, in a paper by Mr. T. R. Chapman on "The Outlying Islands south of New Zealand," contained in the transactions of the New Zealand Institute for 1890, though it is stated that the fur-seal is now very scarce on these islands; the operations of seal poachers are referred to in connection with the Auckland Islands, Campbell Island, Antipodes Island, and the Bounty Islands. The name "poacher" is here applied to sealers killing on the islands, in contravention of the laws of New Zealand. Some of the

men thus referred to come from New Zealand itself, but the only vessel specifically alluded to in 1889 is the "Sarah A. Hunt," a seal-poacher from America (p. 512).

733. Again, in the Straits of Magellan, the British Vice-Consul at Sandy Point reports in April 1889, that the United States schooners pay no attention to the interdiction on sealing enacted by the Chilean Government. Indeed, the frequent presence of sealing-vessels, most of them hailing from ports in the New England States of North America, is a matter of much concern to the different Governments now endeavouring to preserve the seals in these waters.

734. There has been wholesale and most destructive raiding on Robben Island, and other islands in the Okotsk and Japanese Seas; and there have been persistent and more or less successful raids made on the rookeries both of the Commander and Pribyloff groups.

735. In recent times, in the North Pacific Ocean, the greatest instance of the revival of this form of seal hunting occurred during the interval of the transference of the Pribyloff Islands from Russian to
126 American control. Some vessels equipped for the purpose at once visited these celebrated islands and landed sealing parties. Various Companies of United States sealers occupied the islands in 1868, chief among them bands of Connecticut sealers, all of whom entered into armed combination to drive off the sealers under Pflügel, who had come up from the Sandwich Islands to raid. The general result was that at least 75,000 skins were secured in 1867, 242,000 in 1868, and 87,000 in 1869, or a total of more than 400,000 skins in these three years.

736. It is necessary for our present purpose to review the details only of raids made or attempted on the Pribyloff Islands since the United States Government leased these islands to the Alaska Commercial Company, and this Company took formal possession under established Regulations in 1870.

737. The existing records are irregular, often insufficient, and frequently consist of mere allusions or indirect testimony. It is, therefore, probable that but a small proportion of the whole number of raids have actually been recorded, but the notices, such as they are, amply indicate what has been doing. In September 1870, the Secretary of the Treasury gave written authority to the Company to use fire-arms in protecting the rookeries against marauders.

738. Between 1871 and 1880 several actual raids were reported, one of the earliest being one by the "Cygnet," of San Francisco, caught on the 30th August, 1874, shooting seals close to Otter Island, and which raided the rookeries at Zapadnie, St. George Island, on the 1st September, 1874, and again in 1875. In July 1875, the "San Diego" was seized off St. Paul Island with 1,660 skins taken on Otter Island. On the 21st June, 1876, the "Cygnet" and the "Ocean Spray" raided the same rookery.

739. In 1877, the "Industry" was reported as hovering around St. Paul Island, and a raid was made on Otter Island.

739.* In the same year, the revenue-cruizer "Corwin" was instructed specially to look after the seal fisheries. In the Report of her Captain for 1879 occur the following remarks:

In 1877, our first year in these waters, there was a vessel (the schooner "Industry") about the islands late in September, which, without doubt, intended to take seals. She touched at St. George under the plea that she was short of water, but hearing that the "Rush" was still about the islands, left very abruptly without waiting to water ship. I would respectfully state that, in my opinion, it is only necessary that a

revenue-vessel should be known to be in these waters during the season for the protection of the islands, that it is not necessary to locate an officer and men from the vessel on Otter Island, and that now—there being two special agents during the season on each island—an occasional visit by them in their boat from St. Paul to Otter Island would be sufficient.

740. In 1879, the revenue-cruizer "Rush" received her orders "to cruize in the waters of Alaska and among the islands of the Aleutian Archipelago . . . , with a view to protecting the seal-fisheries and sea-otter hunting grounds."

The Captain reported "that in June 1879 he landed 3 tons of coal on Otter Island, and left Lieutenant Wyckoff and two men on St. Paul with instructions to proceed to Otter Island as soon as the Company could furnish him with two men and a whale-boat, this same arrangement having been made every year."

He added that in the end of September (1879), "Lieutenant Wyckoff reports that quite a number of seal would haul ashore at Otter Island during the summer. They were not inclined to stop there, but probably would if there was no one living on the island. He had seen four or five pups which were born there, but later in the season quite a number of young cows came there with the male seals."

741. In 1880, the Captain of the revenue-cruizer "Corwin" reports that he visited St. Paul on the 18th September:

Special Agent H. G. Otis informed me that he had visited Otter Island several times during the summer, and that no vessels nor unauthorized parties had been seen anywhere in the vicinity of the seal islands.

742. In 1880, Mr. Webster, according to his own statement to us, found clubs, hauling-hooks, and dead seals on the Great Eastern Rookery, St. George Island, all left there by raiders.

743. In 1880, the Captain of the revenue cruizer "Corwin" reported to the Secretary of the Treasury his seizure of the schooner "Leo" in the Arctic for whiskey selling to the Eskimo, adding, "There were also found on board the 'Leo' several persons . . . : five were natives of Kodiak, employed, probably, for the purpose of taking seals around the seal islands in the fall."

744. In 1881, the Captain of the revenue-cruizer "Corwin" reported that on the 23rd May, at St. Paul Island, "Colonel H. G. Otis, the Special Treasury Agent in charge, came on board, and, after a consul-
127 tation with him, it was decided unnecessary to detail an officer for duty on Otter Island, as it was believed that the force on St. Paul Island would be ample to protect both islands."

745. In the same report the Captain states that, on the 19th June, 1881, he overhauled the schooner "Flying Mist" at St. Michael's, and found 25 gallons of whiskey on board, "also complete outfit for taking seals, ... seal clubs for killing them, and salt for preserving their skins, and was apparently on a predatory cruize around the seal islands later in the season."

746. The Captain of the "Corwin" also reports that the Special Treasury Agent on St. Paul wrote to him that, "on the night of the 8th June (1881) a schooner, supposed from her suspicious movements to be on a predatory mission in these waters, was sighted off the east side of the island bearing in a northerly direction, and next morning at 2 o'clock she was discovered by the look-out at East Point standing close in shore. Later in the morning, after the men on shore commenced moving about, she stood out to sea." On this the Captain remarks: "As parties on board the 'Flying Mist' acknowledged to having been in the vicinity of the seal islands, she was undoubtedly the vessel referred to

by Colonel Otis, and our suspicions as to her intentions were confirmed. She had probably been frightened off by seeing men on shore, and would return later in the season when the nights were longer, and endeavour to take seals during the night, and stand off shore before daylight." Mr. Wardman reports that he noted raids on St. George Island in 1881, the first being on the 2nd September: "A gap was created in the rookery which was not filled that year." Mr. C. A. Williams reported that vessels hunted often around Otter Island, where, in 1881, sixty carcasses were found at one time.

747. Special Agent D. B. Taylor states that vessels have been poaching around the islands for years, landing under cover of fog, and that no protection is afforded against their poaching right on the rookeries. He adds that, in 1881, the Company was powerless to protect the seals against marauders; but that, if a harbour were built and a steam-launch stationed at each island, the protection would be ample. He states that vessels visit the islands, and kill in all 10,000 to 15,000 seals each year.* Treasury Agent Gliddon, there from 1882–85, reports that the trouble consists in the marauding which takes place every moonlight night.

748. In 1884, the "Alexander" was captured by the Treasury Agent George Wardman off Starry Arteel rookery, St. George Island, but he reported "he had to release her because he could not hold her, being unable to navigate, and there being no harbour at St. George, permitted of no other course under the circumstances."

In the same year the "Adele" was captured and sent to San Francisco.

749. The Captain of the "Corwin" sending in, for 1885, his "general report of operations of vessel for the protection of the seal fisheries and sea-otter grounds," states:

> Mr. Tingle, the Government Special Agent, with a representative of the Alaska Commercial Company, came on board (11th September, 1885), and both stated that during the absence of the "Corwin" in the Arctic, vessels had been cruizing in sight of the islands for the purpose of killing seals; but anticipating the "Corwin's" return and the heavy weather incident to the lateness of the season, none had been seen within three weeks of that time. These gentlemen estimated that about 15,000 seals had been killed by the marauding vessels.

750. The Captain proceeds:

> In previous Reports I have called the attention of the Department to the importance of greater protection to seal life in Alaskan waters, and especially in the vicinity of the Pribyloff Islands. Last year (1884) the schooner "Adele" was seized by an officer connected with this vessel for unlawfully killing seals, and delivered by him to the United States authorities at San Francisco. Instead of being prosecuted, as provided by section 1956 of the Revised Statutes, she was subsequently released on technical informalities.
>
> The same vessel has pursued her illegal occupation during the past summer, and her release from justice has very generally led to the belief that the seizure of the "Adele" was an act unwarranted by law.
>
> Other vessels had previously been seized for the same offence, but in no instance has punishment been inflicted. The Department can readily see what the result will be if this state of affairs be allowed to continue.
>
> During the year, quite a number of vessels have raided Alaskan waters for seal and other fur-bearing animals.
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> * * * * * * *
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> 128 Rumours are current here that the American Consul at Victoria has informed people that they are not prohibited by law from sealing in Alaska or other waters, provided they keep more than three leagues from the shore . . . . ; all in direct violation of the Regulations, &c.

The Report for 1885 concludes with the urgent recommendation "that a revenue-cutter be sent to cruize in the vicinity of the Pribyloff Islands

* House of Representatives Report, No. 3883, 50th Congress, 2nd Session, p. 58.

and Aleutian group during the sealing season. One vessel cannot protect the islands and visit the Arctic Ocean besides . . . . While the cutter is absent in the Arctic, much damage can be done by marauding vessels to the seal islands."

751. In 1885, Mr. Webster, the Company's agent, with the aid of Lieutenant Lutze and his two men left as guard on Otter Island, captured three schooners, one the "Adele." In the same year, Mr. Webster found that the schooners left boats ashore, and the men actually camped in Pirate's Cove, St. George Island, for the purpose of taking seals along the shore. Many vessels were seen frequently hovering around the islands.

752. In 1886, Starry Arteel rookery was raided, and many hundred seals taken. Mr. Morgan found the carcasses of 800 female seals on the shore, as well as the cargo-hooks used for hauling them. The raiders actually camped on the beach and were seen there by the natives, but it was not discovered to what vessel they belonged.

Mr. Tingle, before the House of Representatives Committee, stated that the "San Diego" captured by the "Corwin" in 1886 had on board 175 skins of seals that had been clubbed, and some skins of pups, showing that a raid had been made on St. George Island. We also have sworn testimony that in 1886 and 1887 the "Lookout" raided on the islands. The "C. S. Fowler" is also mentioned as a known raider.

753. In 1887, Mr. Webster saw as many as from four to eight schooners in sight, and hovering around from 3 to 6 miles off. "Many a night has he walked round with his rifle, and seen their boats out shooting seal. One night in 1887, in a thick fog, boats were shooting away so close to shore as to scare all the seals on the beach."

At St. Paul Island on the 18th, 21st, and 25th July, a schooner was seen shooting seals close along the shore off the North-east rookery. On the 28th July a schooner appeared close to Otter Island, the crew ashore killing seals. She proved to be the "Angel Dolly," afterwards captured, because her Captain and one of the crew were accidentally wounded. On the 4th August a steam schooner was reported off North-east Point, and was fired at by the watchmen. She was captured by the revenue-cutter "Rush," and proved to be the "Kate Anna."

In August the Starry Arteel rookery was raided, but nothing was known of the occurrence until some time afterwards. Mr. Webster found all the unmistakable signs of what had been done, either at night or in a fog, but unknown to the authorities.

Mr. Tingle, Treasury Agent on St. Paul Island in 1887, reported a schooner lying off the Reef Rookery killing seals, and she was represented to have taken altogether 4,300 seals. In his report for 1887, he strongly urged that a 20-ton steam-yacht, armed with one gun, should be provided to chase and board the schooners sealing along the islands. He writes: "While the 'Rush' was busy taking care of marauders round St. George, those schooners were killing seals near St. Paul," being frequently in sight, but beyond the reach of the Treasury Agent.

754. In 1888, many vessels were seen hovering around the islands. One schooner anchored in broad daylight in S. W. Bay, St. Paul Island, and boldly sent several boats ashore.

755. In 1889 there are several records, especially around St. George Island, of schooners coming along shore, and of strange men being seen on the beaches in September and October. On the 21st November, a schooner, supposed to be the "Angel Dolly," anchored half-a-mile from the shore, and sent four men ashore who killed seals. On the 22nd November at Zapadnie, St. George, the authorities discovered that

three separate landings had been made, and found two clubs, seven dead female seals and one bull wounded with buckshot. In the autumn the "Allie Algar" raided on St. George, and procured more than 800 skins. A report in the "New York Herald" states that certain members of a schooner's crew boasted that in this year fifteen men had in five hours of one night killed 1,000 seals on St. George. Practical sealers, giving evidence under oath, testified that to their certain knowledge in the year 1889 and 1890 raids were made on the islands by the "George R. White," the "Daniel Webster," the "Mollie Adams," and the "Adele."

756. In 1890, off the North-east rookery, St. Paul Island, on the 15th and 16th June, there were two schooners hovering, with boats out. From the 1st to the 4th July the whaling barque "Lydia" was cruizing along close in shore. Mr. Tingle, the Company's agent, saw a
129 boat in a fog sealing within 200 yards of the beach; he fired at it with his rifle; an unseen vessel at once began to blow her fog-horn, the understood signal of recall to all boats out.

On the 28th August a schooner anchored close to North-east Point. Next day the revenue-cruizer "Rush" boarded her. She proved to be the "Kate Anna," but had no skins on board. For the next eight days a schooner was reported off the same rookery, anchoring close in, lowering her boats, and continually shooting seals within half-a-mile of the shore. Nothing appears to have been done to stop her, although Colonel Murray afterwards reported that there were any number of dead pups found at a later date along the beach. In August the schooner "Adele" was boarded and captured, all her crew being ashore raiding. She was brought into the bay.

The schooner "C. D. Rand" was taken by the cruizer "Rush," in North-east Bay. Her Scotch captain, declaring himself to be a member of the Salvation Army, protested he was not and could not be sealing, because it was Sunday. The only evidence given by the watchmen on shore was that they "had seen a boat." The schooner was released.

In September 1890 a large white schooner sailed into North-east rookery to land a party. The Aleut watchmen fired four shots from Martini-Henry's across her bow. She returned about 100 shots and sailed away.

757. In the same year, on St. George Island, numerous raids or attempts were reported. Four distinct attempts were made at Zapadnie rookery. The "Helen Blum" and "Unga" failed to secure any seals. The "Flying Dutchman" ["Adele"] secured many skins, and it is actually reported that she would have made a great haul but that her crew at the critical moment obtained access to liquor. One schooner was surprised in the act, and departed leaving 190 females killed on the beach, the skins of which were taken and salted by Mr. Webster, on behalf of the Company, as we were informed by Captain Lavender. On the 17th September no less than three schooners were in the offing, and one attempted a landing, but retired when fired at by the watchmen. In the same year, it was also reported that one of the district salt-houses had been broken open by the crew of a vessel, and all the salted skins carried off.

758. Colonel Murray, the cautious Treasury Agent on St. George, informed us that he had examined the traces remaining of many raids that had taken place, unknown to the authorities. On one occasion he had seen the fresh blood-stained tracks down which the carcasses had been hauled to the boats; on another, he and his companion, on a

fairly dark night, had come across thirteen dead seals, clubbed the night before. They had fired twenty-five shots to warn off the raiders, and had noticed, incidentally, that these shots did not in the least disturb the seals around.

759. In 1891, we found all the resident officials and natives persistent in their complaints of raids, and their reports of schooners hovering around the shores with intent to raid, and of that being reported especially on foggy days. When we first arrived at St. Paul Island, on the morning of Monday, the 27th July, the Treasury Agent, Colonel Murray, came off at once in a boat, and besought us to proceed without delay to the North-east rookery, as shots had been heard there repeatedly on the previous day, and at night close along the shore. Major Williams, the Chief Treasury Agent, and Mr. Redpath, the manager for the Company, had driven over 12 miles to the North-east rookery to see what could be done. When we went to the Company's house, Mr. Tingle, the general superintendent of the Company, was perpetually working the telephone to North-east rookery and reporting that schooners were there. The vivid impression produced on us at the time was that whatever the actual amount of raiding in progress, both Government and Company were absolutely without proper means to stop it. On the 29th July we saw a brigantine sail boldly right past the settlement, but there were no means at hand either to detain or even to identify her.

In the late autumn the revenue-cruizer "Bear" remained near the islands for thirty-six days, and then proceeded to coal at Ounalaska; the day after she left the islands a steam sloop raided the Great Eastern rookery on St. George Island.

760. Corroborative evidence has been afforded in 1891 by the newspaper correspondents who visited Behring Sea. According to their accounts, Captain Alexander Carlson, of San Francisco, had been a persistent raider since 1884. Captain Hansen, in the "Flying Dutchman" ["Adele,"] perpetrated many raids, until his vessel was wrecked last year. In 1891 he wished to obtain a coasting clearance for the "Borealis," but his openly-avowed intention to raid led the Collector of Customs at Victoria to refuse him a clearance to Behring Sea, and he went off to Okotsk Sea. Captain Downs, of the "Hattie Gage," made a sworn affidavit that his mate Adams, who superseded him when he was forcibly put ashore on the Shumagin Islands, was proceeding to make raids on the Pribyloff Islands, and that in 1890 the Captain of
130 the "Hattie Gage" had been relieved of the command because he refused to make raids ashore. Captain Reilly, of the "Otto," said that if he had his owner's permission he would willingly make raids.

761. It will thus be seen that raiding on the Pribyloff Islands has been carried on persistently at least since 1868, and that from that date the authorities have known of the raids, and from the earliest time urgently demanded precautions in prevention.

762. The evils of raiding are very great. It is by far the most destructive form of sealing, combining all the disadvantages and none of the advantages of the other forms. The killing is chiefly of breeding females, as the raiders cannot penetrate far enough inland to obtain the young bachelors or immature female seals. Thus, the skins they obtain are those of females which are either still with pup or are suckling their young. Moreover, the process implies disturbance of the breeding rookeries; the scaring of the seals during their breeding time, male, female, and young; and the stampeding of whole rookeries, whereby, without doubt, there ensues that great killing of helpless pups which we have already reported we observed in certain rookeries.

763. We ourselves noticed the great ease with which, under present arrangements, raids might be successfully carried out, and nothing whatever be known to the residents at the moment, while after discovery depended merely on accident. Even on the rookeries immediately under the settlements no look-out is kept. For instance, we steamed into the anchorage of the settlement at St. Paul, close past the Zapadnie and Tolstoi rookeries, one bright moonlight night (14th September), and moved early the next morning by daylight round the Gorbotch and Reef rookeries to the other landing, without our presence becoming known in any way at the settlement. On the outlying rookeries no watch whatever is present, except at North-east Point on St. Paul Island and Zapadnie on St. George Island. All the other rookeries on both islands are, as a rule, absolutely without any watch or guard. On North-east and Zapadnie rookeries the guard consists of two or three native Aleuts who have rifles, but are instructed not to fire at men. Moreover, we are by no means assured that bribery by money or drink has not been actually practised over some of these distant guards.

Evidence was afforded of numerous instances of the signs of recent raids being discovered, although as to the actual occurrence nothing whatever was known to those in authority at the time, and we are not at all surprised to see that in recent years the reports that schooners are hovering off the island, anchoring close in, and sending boats ashore, are rapidly growing in frequency. As the prospects of a heavy catch ashore or along the rookery fronts are great, so is the temptation great, especially as chances of detection are few and innocuous, and chances of capture most remote under the present system.

In short, under present regulations and arrangements, there is no difficulty or danger whatever to vessels raiding along shore any night, or in any of the frequent fogs at several of the best rookeries, except when a revenue-cruizer chances to be close by, an occasional occurrence well known to every marauding schooner. Moreover, the United States cruizers never interfere with "whalers," some of which undoubtedly, at all events, report the movements of the cruizers, forming as it were both watch-houses and store-houses for the raiders, even when they do not themselves engage in actual raiding.

764. It is, perhaps, needless to reassert that this form of taking seals is entirely illegitimate, and although it is a very severe and disastrous drain on seal life, it is, nevertheless, one for which the national government and the administration are entirely and solely responsible. Thus, the British men-of-war which in 1891 entered Behring Sea for the purpose of assisting in stopping sealing at sea were expressly and properly precluded from taking any step within the ordinary jurisdictional limits around coasts and islands.

765. It may be pointed out that in no case yet has it been shown or proved that any British vessel ever engaged in raiding on the Pribyloff Islands.

766. There is no valid reason whatever why the local authorities should not be provided with ample means for stopping raids. It should be remembered also that the San Francisco sealers have asserted that the possibility of raiding, a most profitable operation, encourages sealers of a certain class to fit out sealing-schooners and enter Behring Sea, and if the local authorities made raiding the great risk that it should be, they would take one practical step towards reducing the number of vessels which engage in this illegitimate and most destructive methods of sealing.

767. While we were visiting the Commander Islands in 1891, we paid special attention to the means adopted for preventing raids. The Russian authorities acknowledged that the danger was great. At one time, sixteen Cossack soldiers were stationed on each island authorized to fire on all raiders, and at the present time this force consists of thirty-six armed native watchmen under four Cossacks. The 131 Company's trading steamer was specially authorized to seize schooners when she had the proper Government officials on board, and now a gun-boat is detailed to cruize round the islands during the sealing season. We found the system of watching and reporting by the Aleuts to be in admirable order. When we first arrived, we found even the mastheads of the "Porpoise" and the "Danube" had been reported as having been seen above the fog on the other side of the island, and on Copper Island our presence in a bay at one end of the island had been at once reported by special messenger to the settlement seventeen miles distant.

768. Among measures to this end most frequently advocated is that of having a revenue-cruizer permanently stationed at the Pribyloff Islands throughout the months of June, July, August, and September. But we found, in 1891, that the revenue-cruizers were often far distant from the seal islands, perhaps in Iliuliuk Harbour, waiting for mails or coals, or away cruizing around Nunivak or St. Matthew Island, or on duty at St. Michael's or other distant points. We also noticed that, in the frequent fogs and the dark loom of the land, schooners can very easily elude even the sharpest look-out from seaward. In our opinion, the most effectual, as well as the most economical, method of guarding against raids would be to have an armed police force with details permanently on guard near each rookery, and with specific orders to fire on all persons landing or taking seals. The rookeries are limited in number, and moderately well defined in area, and could easily be thus defended with effect.

769. We would also point out that, in so far as disturbance of seals is concerned, it would be well if greater restriction was placed on the number of persons allowed to visit the rookeries and outlying islands. We found that Walrus Island was regarded practically as a shooting resort for all Government officials and all officers of Government ships. Again, when on the 4th August we went in a steam-launch from St. Paul anchorage quietly to note whether there were any seals on Otter Island a revenue-cruizer happened to come in, and while we were proceeding dead-slow along the shore carefully looking for seals she landed a boat's crew, and the officers at once began with shot-guns and revolvers shooting at the foxes and sea-fowl on shore. This appears to be a common practice in all years, and is quite sufficient of itself to scare all seals from these particular islands. We might here also mention that the day before we paid our first visit to the North-east Rookery (on the 5th August), American officers had been driving up and shooting sea-lions there for scientific purposes.

770. In regard to the practical effect of these raids on the total catch of seals, it would appear that, from the annual recorded totals of the American catch landed from schooners, very material deductions must be made and transferred to the annual total catch on the Pribyloff Islands as being the result of operations on and around the rookeries on the Pribyloff Islands, and forming, therefore, properly speaking, no part of the pelagic catch. It is not possible, owing to the scantiness of records kept on the islands, to estimate precisely the total numbers of seals thus killed. It is certain, however, that raids constitute a very material drain on the seal life of the Pribyloff Islands, probably

amounting in some years to many thousand seals; that the practice involves the barbarous slaughter of very large numbers of females and pups of immature growth; and that it is an evil for which the remedy is extremely simple and easy of application, consisting merely of the most rudimentary police arrangements for insuring the execution of the local laws.

V.—Number of Fur-Seals Killed upon the Pribyloff Islands.

771. While the foregoing account of the methods of control and the manner in which seal killing has been and is conducted on the Pribyloff Islands shows that the official returns cannot absolutely represent the whole annual slaughter, these returns are of great interest for the purpose of instituting general comparisons as between the amount of the killing in various years, and particularly in their bearing on the fact of the unprecedented character of the draft which has been continuously made on the seal life of the islands since they passed under the control of the United States, which has already been referred to at length. Much care has been given to the compilation of the subjoined table, which, it will be remarked, does not represent either the number of accepted skins actually got in each year or the shipments of such skins actually made, but is intended to show, as far as the returns admit, the whole number of seals killed according to the official count. The unrecorded causes of loss and waste would, of course, add considerably to the figures actually given:

132 *Table showing the Number of Fur-seals killed on the Pribyloff Islands in each year, from 1817 to 1891.*

Year.	Number of Seals killed.	Number of Pups killed.	Year.	Number of Seals killed.	Number of Pups killed.
1817	60,188	Includes pups.	1855	8,585	
1818	59,856		1856	23,550	
1819	52,225		1857	21,082	
1820	50,220		1858	31,810	
1821	44,995		1859	32,000	
1822	36,469		1860	21,590	
1823	29,873		1861	29,699	
1824	25,400		1862	34,294	
1825	30,100		1863	25,000†	
1826	23,250		1864	26,000†	
1827	19,700		1865	40,000†	
1828	23,228		1866	42,000†	
1829	20,811		1867	75,000	
1830	18,034		1868	242,000*	
1831	16,034		1869	87,000	
1832	16,446		1870	23,773	
1833	16,412		1871	97,002	
1834	15,751		1872	101,698	
1835	6,580		1873	101,555	
1836	6,590		1874	107,932	
1837	6,802		1875	101,249	
1838	6,000*		1876	89,478	
1839	6,000*		1877	77,956	Average annual killing of about 4,600 pups not included.
1840	8,000*		1878	101,394	
1841	8,000*		1879	106,908	
1842	10,370		1880	100,634	
1843	11,240		1881	101,734	
1844	11,924		1882	101,736	
1845	13,637		1883	77,063	
1846	15,070		1884	101,013	
1847	17,703		1885	101,509	
1848	14,650		1886	100,772	
1849	21,450		1887	100,795	
1850	6,770		1888	100,450	
1851	6,564		1889	100,135	
1852	6,725		1890	20,995	Not including pups.
1853	18,035				
1854	26,146		1891	12,071	

* Approximate, probably 270,000 if St. George Island be included.

Total Shipments of Skins (by periods) made by the Russian American Company and the succeeding Alaska Commercial Company.

Includes some skins from the Commander Islands and elsewhere—	Skins.
Russian-American Company (and Antecedent United American Company), 1799 to 1821 (both inclusive), 23 years	1,232,374
(Elliott, Census Report, p. 70.)	
Russian-American Company (second period), 1822 to 1841 (both inclusive), 20 years	458,502
(Bancroft, p. 563, from Techminoff; Elliott, Census Report, p. 70.)	
Russian-American Company (third period), 1842 to 1861 (both inclusive), 20 years	338,600
(Bancroft, p. 582, from Techminoff.)	
Pribyloff Islands alone—	
Interregnum (1862 to 1867), being years between last term of Russian-American Company and period of United States control (about)	242,294
(See Table of annual killing.)	
In 1868 there were taken about	240,000
(Elliott, Census Report, p. 70.)	
In 1869 there were taken about	87,000
(Elliott, Census Report, p. 70.)	
Alaska Commercial Company, 1870 to 1889 (both inclusive), 20 years.	1,840,364
(Parliamentary Paper [C. 6368], p. 45.)	
Total, 1799 to 1889 (91 years)	4,439,134
Average annual shipment of skins	48,782

133 *Sources of Information Utilized in the above Tables.*

772. 1786. Shelikoff (quoted by Bancroft, vol. xxxiii, p. 192) states that 40,000 skins were secured in the first year of hunting.

773. 1787 to 1806. Taking Resanoff's estimate of total killing of seals on Pribyloff Islands to 1806 at 1,000,000, the annual killing during this period seems to have averaged about 50,000, though known to have been irregular from year to year.

774. 1807 to 1816. In 1817 Veniaminov's account of number of seals killed on Pribyloff Islands begins. No exact data have been found for the years between 1806 and that date, but from the figures quoted in Bancroft's History (vol. xxxiii, p. 418) from Materialui Istor Russ, a rough approximation may be arrived at of annual killings in Behring Sea from 1745 to 1822, a period extending from the beginning of sealing for seventy-six years. The total number of skins obtained in this period was, according to the above figures, 2,324,364. Deducting from this Veniaminov's figures for seals killed on the Pribyloff Islands from 1817 to 1822 (both inclusive), the number remaining for the years 1745 to 1816 (both inclusive) is 2,056,880, or an average of 28,970 per annum. This of course includes skins taken on the Commander Islands, with some obtained from natives in trade elsewhere. It also includes the years 1745 to 1785 antecedent to the discovery of the Pribyloff Islands, during which it is known that *more* than 93,000 fur-seal skins were obtained, chiefly from the Commander Islands (Bancroft, pp. 111–191). It, however, does not include seals killed for food on the Pribyloff Islands, and of which the skins were not kept. It thus appears probable that, allowing the differences in opposite senses to offset each other, the total average annual killing on the Pribyloff Islands from 1807 to 1816 (both inclusive) was not far from 30,000.

Another approximate value for the killings in these years may be obtained from Techminoff's figures, which are official, and are quoted by Elliott.

Techminoff gives the total shipments for the years 1798 to 1821 (both inclusive) as 1,232,374.* Elliott states that about 5,000 of this amount

* Bancroft, however, gives the figures for 1799 to 1821 (both inclusive) as 1,767,340 (p. 418), and no explanation has been found of this discrepancy.

each year came from the Commander Islands. Deducting these and also the skins accounted for by Veniaminov for 1817 to 1821 (both inclusive), the average annual product in skins from the Pribyloff Islands is found to be 44,468. The period thus accounted for includes only nine years antecedent to the period beginning with 1807, which it is wished to bridge. It is probably nearer the fact for these years than the foregoing estimate, with which it, however, agrees fairly well. It also tallies well with the earlier years of Veniaminov's table. Techminoff's figures do not include seals killed for food or otherwise of which the skins were not kept, but it is scarcely probable, even including these, that the average annual killing on the Pribyloff Islands for the years in question reached 50,000. It may reasonably be assumed to have been between 45,000 and 50,000, or, say, 47,500. As in the years before 1807, the number killed from year to year is, however, known to have been irregular.

775. 1817 to 1837. The figures for these years are Veniaminov's, as ascertained by Mr. Elliott from an inspection of Shisenekoff's journal, and includes pups in the numbers given for 1835–36. It may, therefore, probably be assumed that pups are included throughout.

776. 1838 to 1860. The figures for these years are taken from the Correspondence relating to Fur-seal Fisheries, printed in Washington in 1890.

777. 1861. Bancroft's total for years 1842–61 (both inclusive) is 338,600. The total for years 1842–60 (both inclusive) is 308,901. This being deducted from total for 1842–61 gives the number of seals taken in 1861.

778. 1862. Elliott (p. 165) gives the total catch for 1842–62 (both inclusive) as 372,894. Bancroft's total for 1842–61, 338,600, being deducted from this sum gives the number of seals taken in 1862.

779. 1862 to 1867. Both inclusive, being years of interregnum between last term of Russian American Company and United States control of Pribyloff Islands, have been filled hypothetically by Elliott, who explains that, guided by information obtained from the natives, he has proportioned the number of skins in the salt-houses on the islands in 1867 (40,000 to 48,000) back to the latest figures given by Techminoff (1861). The figures for these years are therefore far from satisfactory. A more complete examination of the subject has enabled moderately exact figures to be obtained from 1861 and 1862, as explained above, while Bryant gives the number for 1867 as 75,000 (Allen, "Monograph of North America Pinnepedia," p. 389); but for the years 1863 to 1866 Elliott's approximate estimates must still be taken. It is to be
134 presumed that these figures represent only marketable skins, not including pup skins and other rejected skins. As confirmatory of the approximate correctness of these estimates, Dall may be quoted. Writing in 1868 (Alaska and its Resources, p. 496), he says that of late years the Russians had not been allowed to take more than 50,000 annually. Bryant, quoted by Allen, referring to this same period, says that for many previous years the Russians took but few seals, but the number has increased, so that in one year 40,000 were taken. (Monograph of North America Pinnepedia, p. 389.)

780. 1868 and 1869. The figures for these years are those given in Elliott's Census Report, p. 70, and are doubtless the most trustworthy that can be procured.

781. 1870. The figure for this year includes pups, 4,000, and a large number of rejected skins. (Ex. Doc. No. 83, 44th Congress, 1st Session, p. 63.)

1871 to 1889. The figures for these years were taken from Correspondence relating to Behring's Sea-seal Fisheries, Parliamentary Paper [C. 6368], pp. 44–47, and include all seals, other than pups, killed for any purpose. From 1870 to 1889 (both inclusive), 92,864 pups were killed for food, an average annual killing of 4,643.

VI.—Historical Notes on the Condition of the Fur-seal Rookeries of the Pribyloff Islands in Various Years.*

782. 1786. Pribyloff discovered the islands now known by his name in June of this year. He returned to the Asiatic coast with 31,100 fur-seal skins. It is elsewhere recorded that about 40,000 fur-seal skins in all were taken on the islands in this year. (Bancroft's works, vol. xxxiii, pp. 185, 192, 193.)

In the first years (after the discovery of the islands), the seals in St. George Island were only five or six times less than those on St. Paul, *i. e.*, equal to one-sixth or one-seventh of those on St. Paul. (Veniaminov, quoted by Elliott in Census Report, p. 147.)

From 1786 to 1797 or 1799, several Companies were engaged in taking seals, without count or list. Veniaminov estimates that 50,000 to 60,000 skins were obtained annually on St. Paul and 40,000 to 50,000 on St. George. He characterizes this as "horrible killing." (Quoted by Elliott. Census Report, pp. 70, 140, and 147.)

783. 1799. The islands came under the control of the United American Company, which was organized at Irkutsk in August 1798.

784. 1800. First year of control of Russian American Company, an out-growth of the last, organized in 1799.

785. 1803. Baranoff ordered Banner to go to the Pribyloff Islands, which "had not been visited for many years" (by traders), and where a vast number of skins must have been accumulated by the natives. (Bancroft, p. 417.)

786. 1804. Between 1801 and 1804, the Russian American Company are said to have accumulated about 800,000 skins, many of which rotted for want of care. (Bancroft, p. 477.)

787. 1805. Veniaminov states that no care as to the preservation of seal life on the islands was exercised till this year. (Census Report, p. 141.)

1806. Resanoff visited St. Paul Island in July. He found that a very wasteful killing of seals had been in progress, that 30,000 had been killed for their flesh alone, while over 1,000,000 in all had been killed up to date. He was informed that the seals had decreased 90 per cent. in number since the earlier years, and concluded that if the slaughter was not reduced a few years would witness extirpation. He ordered the killing to be stopped; but from the season of his visit it is certain that some seals had been killed in 1806 before his arrival. (Bancroft, pp. 445, 446.)

788. 1806–1807. Following Resanoff's order, no seals were killed on the Pribyloff Islands during these years (with the probable exception above noted). Nearly all the natives were removed to Unalaska. (Census Report, p. 140.)

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*Notes given below which have not been derived from published reports and documents, but have been obtained as a result of our own inquiries, are inclosed in brackets, thus [ ].

789. 1808. Killing was recommended on St. George and in 1810 also on St. Paul, but not till 1812 did it amount to half the number killed in former years. Females as well as males were taken. Killing without proper supervision continued from this time till 1822. (Veniaminov, quoted by Elliott. Census Report, p. 140.)

790. 1817. The fur-seals on St. George were estimated to amount to a quarter of those on St. Paul; seals on the latter island having decreased more in proportion. (Veniaminov, quoted by Elliott. Census Report, p. 147.)

135 791. 1817 to 1837. A gradual diminution of seal life on the islands stated to have been in progress in these years, visible in each year, but not always equal, according to Veniaminov. This is also indicated by Veniaminov's quoted figures of annual catch. (Census Report, pp. 143, 147.)

792. 1820. Veniaminov characterizes the annual killing of 50,000 seals, which occurred at about this date, as excessive and leading to diminution. (Census Report, p. 147.)

793. 1822. First year of second term of Russian American Company. Moorayveff ordered the killing to be limited, so that instead of 40,000 or 50,000 not more than 8,000 or 10,000 were taken. (This appears to refer to St. Paul Island only.) (Census Report, p. 140.)

794. 1822 to 1824. Period of rest or restricted killing on St. Paul. (Veniaminov, quoted by Elliott. Census Report, p. 142.)

795. 1824. Stated that between 1822–1824 the seals on the islands were estimated to have doubled in number. (Report upon the Condition of Affairs in Alaska, p. 107.)

796. 1826–1827. Both years inclusive. Period of rest or restricted killing on St. George Island. (Veniaminov, quoted by Elliott. Census Report, p. 141.)

797. 1826. Veniaminov states that the seals on St. George equalled about one sixth those on St. Paul, those on St. George having increased more in proportion since 1817. Also, that Chestyokhoff, estimating that the seals had doubled in number as a result of restrictive measures, ordered 40,000 to be killed annually. But with all possible effort this number could not be obtained. Greater caution in killing females, &c., was ordered, but the number of seals on the islands nevertheless remained stationary, or continued to decrease. (Veniaminov, quoted by Elliott. Census Report, pp. 140, 147.)

798. 1832. Veniaminov incidentally states that in this year an excessive number of females were observed on the islands without young. (Quoted by Elliott. Census Report, p. 141.)

799. 1834. The number of seals to be taken at St. Paul was largely reduced, the killing being limited to about 4,000 instead of about 12,000. (Veniaminov, quoted by Elliott. Census Report, p. 142.) From Veniaminov's table the reduction ordered in 1834 took effect only in 1835. This rest or "zapooska" continued on St. Paul Island during 1835, 1836, and 1837.

800. 1835. [R. Astomonoff, a native on St. Paul Island, informed us that he remembered being at North-east Point in this year, when the Russians allowed only seven seals a-day to be killed there for food.]

1836. Elliott, from information received from natives on the Pribyloff Islands, states that the winter of 1835–36 was exceedingly severe. Great quantities of ice surrounded the islands, and remained heaped on the shores till August 1836. A great mortality of seals resulted, so that, according to native count, only 4,100 seals of all classes, exclusive of pups, remained on the rookeries of St. Paul. (Census Report, p. 49.)

Mr. Elliott has informed us that, according to a journal by the Rev. K. Shisenekoff, only 100 holluschickie were obtained in 1836, the remainder of the catch for this year being pups. Bryant, also according to native evidence, gives the date of this destruction of seals as 1842. (Allen, Monograph of North American Pinnipeds, p. 388.)

801. 1842. First year of third term of Russian American Company. Bancroft states that a system of "alternation" in hunting grounds was adopted, which, in the case of the Pribyloff Islands, led to great increase of numbers of seals. (Bancroft's Works, vol. xxxiii, p. 582.)

802. 1842 to 1861 (inclusive). The Russian American Company's shipments showed a heavy decrease in fur-seal (and other) skins, as compared with the preceding period of twenty years. This is mainly attributed to the encroachment of foreign traders—particularly American whalers. (Bancroft's Works, vol. xxxiii, p. 582.)

803. 1845. The great importance of never disturbing the breeding seals was first recognized in this year. (Census Report, p. 143.)

804. 1847. Up to this date males and females had been killed indiscriminately for skins; thereafter only males were killed. (Census Report, p. 49.)

805. 1862 to 1867 (both inclusive). Interregnum on Pribyloff Islands following the close of the Russian American Company's third term.

806. 1862. Techmainoff says, referring to this year: "In earlier times more (seal-skins) were taken than in the later; at present there are taken from the Island of St. Paul 10,000 annually, without diminishing the number for future killing; on St. George, 6,000." (Quoted by Elliott. Census Report, p. 163.)

807. 1867. Bryant speaks of the judicious administration and
136 gradual increase of seal life on the islands under the Russian rule for many years previous to this date. In the spring of 1867, however, the Russians, knowing that the islands were about to be surrendered to the United States, took a much increased number of seals, amounting to 75,000. (Monograph of North American Pinnipeds, p. 389.)

808. 1868. Following the cession of Alaska to the United States in 1867 a period of lawlessness ensued on the Pribyloff Islands, and in 1868 a very great number of seals was killed. The number so killed in this year is estimated at 242,000 by Elliott; at 250,000 by Bryant. Rival Companies were at work, and the killing appears to have gone on without count, list, or supervision. In the autumn of this year, however, Congress passed a special Resolution, prohibiting the killing of seals until further action of Congress. (Census Report, p. 25.) Bryant states that, previous to 1868, the selection of seals killed had, under the Russian régime, been left to the natives, and that most of those killed were under 3 years of age, including many yearlings. The killing being from this more numerous class plenty of males were left to reach maturity, and the rookeries were well supplied with active males. The males of all ages not engaged in actual breeding were about equal in number to the combined totals of beachmasters and females so engaged. Of these excluded males about 30 per cent. were virile, and there was thus one efficient male to every three or four females, or about three times as many as actually required. As a consequence, all females were served before the 10th August. (Monograph of North American Pinnipeds, pp. 390, 398, &c.)

[Messrs. D. Webster and T. F. Morgan were on the island in this year. They informed us that the seals were clubbed then as now, firearms being used only in self-defence among the rival sealers. The kill-

ing was directed to young males, but about 40,000 females were killed inadvertently. The limit to the number killed was reached only when salt was exhausted. Seals were more abundant at this time than ever since. It also appears that the numbers above quoted as representing seals killed in this year do not include St. George Island, where some 30,000 skins are supposed to have been taken.]

809. 1869. Practically indiscriminate killing appears to have continued in this year, though it is stated that seals were taken only for the subsistence of the natives, and under direction of the Treasury Department. (Census Report, p. 25.) The gentlemen in charge do not seem to have known the number of seals actually killed. Agent Wicker stated that 150,000 skins had been taken on the two islands. Bryant states that this was impossible, as when he left the islands in August only 16,000 skins had been obtained. McIntyre says that, under the orders given by him, 42,317 seals were to be killed for food on the two islands. Major-General Thomas afterwards ordered that as many seals as should be required for native food be killed. (United States Senate, Ex. Doc. No. 32, 41st Congress, 2nd Session, pp. 24, 37.)

In consequence of this slaughter in 1868–69, seals are reported to have "disappeared rapidly from the Pribyloff Islands, but two or three years later began to return in vast numbers" (Bancroft's works, vol. xxxiii, p. 638). Coincidently with this, Bryant states that fur-seals were very abundant along the coasts of Oregon, Washington Territory, and British Columbia as compared with former years (Monograph of North American Pinnipeds, p. 332). Bryant estimated the total number of seals on the islands at this date at 3,230,000. (Monograph of North American Pinnipeds, pp. 390, 392.)

McIntyre, Government Agent, after stating that for some years succeeding the discovery of the Pribyloff Islands 100,000 skins were annually taken by the Russians, adds, "But this it seems was too large a number, for the decrease in the yearly return was constant until 1842, when they had become nearly extinct. In 1858, 31,800 were taken, which was the largest catch in any one year until 1867, when, as I am informed, 80,000 or 100,000 were secured. From the most careful computation I have been able to make, I am of the opinion that no more than 100,000 can be taken annually without incurring the risk of again diminishing the yearly production." (United States Senate, Ex. Doc. No. 32, 41st Congress, 2nd Session.)

The Alaska Commercial Company was incorporated in this year.

810. 1870. The general conditions of seal life on the islands remained as described above (under 1868), according to Bryant.

An Act was passed by Congress providing that seals should be killed on the Pribyloff Islands only during the months of June, July, September, and October, that killing should be confined to males, and that the number killed for skins in each year should not exceed 75,000 on St. Paul and 25,000 on St. George. Respecting the number thus fixed, Dall says: "It is probable that 100,000 might be safely killed," but suggests that the number should be increased or diminished as experience proved to be necessary. (Alaska and its Resources, pp. 496, 497.)

137 This was the Alaska Commercial Company's first year of lease of the islands, but no full control was achieved till 1871. Bryant states that in this year the natives, to purchase supplies and for their own food, killed 85,000, mostly 1- and 2-year-old seals. (Monograph of North American Pinnipeds, p. 398.)

The killing as per official Return made up in 1871, however, shows a total of 23,773, from which 9,988 skins in all were saved, the remainder being pups and other seals killed for food. (House of Representatives, Ex. Doc. No. 83, 44th Congress, 1st Session.)

811. 1871. It was discovered that the skins of 3-, 4-, and 5-year-old seals were most in demand, and the killing was changed to suit this demand; but no material change was observed in the habits of the seals. (Monograph of North American Pinnipeds, p. 392.) Bryant elsewhere says that a careful comparison of this year with 1869 and 1870 shows a decrease of 10 per cent. in females. (Ex. Doc. No. 83, 44th Congress, 1st Session, p. 65.)

812. 1872. The killing was directed as far as possible to seals from 4 to 6 years old, and some of 7 years old were killed. This, taken in conjunction with the killing of 1871, diminished the number of "reserves" or virile males not actually on the breeding grounds, but doing duty along the shores. The number of females was increasing 5 per cent. annually. (Bryant in Monograph of North American Pinnipeds.)

Lieutenant Maynard, accepting the method of estimating the seals advocated by Elliott, makes the whole number in this year nearly 6,000,000. (House of Representatives, Ex. Doc. No. 43, 44th Congress, 1st Session, p. 5.) Elliott estimated that the seals on St. George Island were only one-eighteenth of the whole number, or, as compared with those on St. Paul, as 1 to 17. (Census Report, p. 157.)

[Mr. Dirks stated to us that in this year it seemed as if the killing of 100,000 seals annually could not injuriously affect the rookeries.]

In this year Captain Lewis, of the Hudson's Bay Company, reported very great and entirely unprecedented number of seals off Vancouver Island and the entrance to Fuca Strait, chiefly grey pups and yearlings. (Elliott. Census Report, p. 166.) This appears to have been in connection with the change in habits observed on the rookeries in the following summer.

813. 1873. It was now found that the 3-year-old seals afforded the best marketable skins, and the killing was directed to those. The "reserves" became reduced to half their former number, and each beachmaster had on the average fifteen females. When the rookeries broke up at the close of the breeding season, the females lingered instead of leaving them as before. In September and October a few young were born, showing that some females had not been served at the proper time in 1872. The females were still increasing 5 per cent. annually in number. (Bryant in Monograph of North American Pinnipeds.)

814. 1874. The condition of seal life remained about the same as in 1873. The "reserves" were in about the same numbers, but contained more young as compared with fully mature males. The females appeared in similar number, and, on the whole, there was an evident improvement in the condition of the rookeries. (Bryant in Monograph of North American Pinnipeds.)

An Act of Congress, approved March 1874, authorized the Secretary of the Treasury to rearrange the proportion of catch to be taken from St. Paul and St. George respectively, and to designate the months of killing. Under this provision, the time of killing was extended to include the first half of the month of August. (Bancroft's Works, vol. xxxiii, p. 638.)

815. In 1874, Lieutenant W. Maynard, U. S. N., investigated the conditions of seal life on the Pribyloff Islands as Special Government Agent. He recommended that enlarged copies of maps of the breeding grounds should be furnished to the agents in charge of the islands,

who should be required to compare these each year with the respective breeding rookeries. "This, if carefully done, will afford data, after a time, by which the fisheries can be regulated with comparative certainty." Respecting the number of seals killed, he says: "Since 1870 there have been killed on both islands, in round numbers, 112,000 young male seals each year. Whether this slaughter has prevented the seals from increasing in number or not, and, if so, to what extent, can only be deduced from their past history, which, unfortunately, is imperfectly known." He is inclined to think that no decrease had occurred between 1872 and 1874, but states that the period was too short to decide whether the killing was excessive. He adds: "The number now killed annually is entirely experimental, and we have nothing to start from as a basis." Maynard further states that the number of bulls in this year was not more than one-tenth that of the females. (House of Representatives, Ex. Doc. No. 43, 44th Congress, 1st Session, pp. 5, 6.)

138 [Mr. D. Webster states that the skins taken in 1874 and 1875 ranged in weight from 6 lbs. to 11 lbs.]

Elliott believes that the number of seals did not materially alter in the twelve or fifteen years previous to 1874. He estimated the number of breeding seals on the islands at 3,193,420, the whole number of seals on the islands at 4,700,000. (Census Report, pp. 57–67.)

816. 1875. The killing was this year confined to seals less than 5 years old, and more 2-year-olds were taken than in any year since 1870. This left a large number of males to mature. Many young were, however, born as late as August. (Bryant in Monograph of North American Pinnipeds.) In his official Report for this year, Bryant protests against the killing of pups for food, characterizing it as "a great waste," and adding, "I can find no precedent for this previous to the transfer of the island to the United States, only that the former Russian Fur Company allowed, as an extra indulgence to the natives, after the close of the season's sealing, to take 500 of these young seals for feasting." (House of Representatives, Ex. Doc. No. 83, 44th Congress, 2nd Session, p. 174.)

Bryant also states in the same Report (p. 175) that a residence of seven successive seasons on the islands had convinced him that the killing of 100,000 annually did not leave a sufficient number of males to mature for the wants of the increase in the number of females. He explains his reasons for this in some detail.

817. 1876. No marked change in the conditions this year, but many females landed to bring forth their young after the 20th July. A heavy gale with snow occurred on the 30th October, driving seals into the water, from which only a small number returned, many pups being lost. Bryant anticipates that the result of this loss will appear in 1880, when the pups should reach maturity. The decrease in breeding males, consequent on excessive slaughter of 1868 and 1869, was in this year greatest. (Bryant in Monograph of North American Pinnipeds, p. 399.)

Bryant again states that he believes the number 100,000 fixed for killing to have been too high, and that in his report he had recommended that it be reduced by 15,000. (House of Representatives, Ex. Doc. No. 623, 44th Congress, 1st Session, Report on Alaska Commercial Company, p. 99.)

John F. Miller, President of Board of Directors of Alaska Commercial Company, says: "Our agents report a very considerable increase in the number of females since 1871. We cannot tell that there is much increase in the number of males." (Report on the Alaska Commercial Company, p. 41.)

818. 1877. Bryant states that this year there was an evident increase in the number of breeding males. He estimates that there were about 1,800,000 breeding seals on the islands, as against 1,130,000 in 1869. (Monograph of North American Pinnipeds, p. 410.)

819. 1878. [Mr. D. Webster informed us that he did not observe much decrease in the number of seals till this year.]

820. 1879. [From evidence obtained by us, it appears that in this year it became necessary to extend the area of driving for the first time, so as to include Polovina and Tolstoi rookeries, and that the salt-house near Polovina was built at or about this time.]

821. 1880. The number of seals on the Pribyloff Islands is said to have been greater than ever before, the increase being particularly observable in young seals. (Cruise of the "Corwin" in 1880, p. 55.) Colonel J. Murray dates the beginning of a steady decrease of seals from this year. (Senate, Ex. Doc. No. 49, 51st Congress, 2nd Session.)

822. 1881. Elliott, in his report printed in this year, strongly protests against the unnecessary slaughter of pups for food purposes. He states in the same report that the breeding rookeries have been gradually increasing since 1857. (Census Report, pp. 119, 170.)

W. B. Taylor, Assistant Agent of Treasury Department on St. Paul in 1881, says that according to information received from those who had been a number of years on the Island of St. George, there were as many seals there as ever. (Ex. Doc. No. 3883; 50th Congress, 2nd Session, Fur-seal Fisheries of Alaska, p. 44.)

823. 1882. Dr. H. H. McIntyre, after June 1870 Superintendent of the Seal Fisheries of Alaska for the lessees, states that since 1870 the number of seals on the Pribyloff Islands has increased every year. (Fur-seal Fisheries of Alaska, p. 116.) Speaking in 1888 (see under, 1888), he, however, places the beginning of decrease in this year. The same gentleman reports that at this time the desired number of large skins could no longer be obtained. (Fur-seal Fisheries of Alaska, p. 118.)

Mr. G. Wardman's statement, however, respecting the number
139 of "killables" on St. George Island indicates a decrease in the number of this class as between 1881 and 1882. (Fur-seal Fisheries of Alaska, p. 39.)

[Natives on St. Paul Island informed us that they noticed seals to be markedly reduced in number in this year.]

824. 1883. Jacob H. Moulton, Special Agent of the Treasury Department on the Pribyloff Islands from 1877 to 1885, says that between 1877 and this year there was, he thinks, an increase in the number of seals on the Pribyloff Islands. (Fur-seal Fisheries of Alaska, p. 255.)

825. 1884. [Mr. T. F. Morgan informed us that from 1874 to 1884 he thought the seals increased. He noticed a decrease in 1884, accompanied with an irregularity in habits.]

826. 1885. Jacob H. Moulton states that between 1883 and this year there was no increase of seals on the islands. (Fur-seal Fisheries of Alaska, p. 255.)

H. A. Gliddon, Agent of the Treasury Department on the Pribyloff Islands from 1882 to 1885, says that from 1882 to 1885 no change in the number of seals on St. Paul was noticed, but they vary in different years, especially on St. George. (Fur-seal Fisheries of Alaska, p. 27.)

827. 1886. George R. Tingle, Treasury Agent on the Pribyloff Islands, states that a frequent inspection of the rookeries on the islands showed a decided increase in the number of cows, with an ample supply of bulls. ("Fur-seal Fisheries of Alaska," p. 174.)

828. 1886–87. George R. Tingle, using Elliott's method of estimating the seals, makes the number on the Pribyloff Islands 6,357,750. He states, however, that he considers this result too great by about one-fourth, which reduces his estimate to about 4,768,300. (Fur-seal Fisheries of Alaska, p. 177.)

[From information obtained on the islands, it appears that the reduction in average weight of skins taken was well recognized in these two years.]

829. 1887. [Mr. T. F. Morgan told us that he noticed a marked decrease in this year. In this or the preceding year, according to Mr. J. C. Redpath, the standard weight of skins was lowered to enable the Company to complete its quota.]

830. 1888. Dr. H. H. McIntyre, Superintendent for Alaska Commercial Company at the time on the islands, states that the number of seals has decreased since 1882; that the rookeries do not produce enough to bear the killing of "100,000 by marauders in addition to the 100,000 killed lawfully." He recommends that the permission accorded to natives of killing seal pups for food should be rescinded, and, speaking particularly of 1888, says: "There are at present, in my opinion, too few bull seals to keep the rookeries up to their best condition."

He adds, further, that the size of skins ruled still smaller than in 1883. (Fur-seal Fisheries of Alaska, pp. 116, 117, 127, 132.)

In the same year T. F. Morgan, in the employment of the Alaska Commercial Company, says that there had been a large increase in the number of seals on the islands since 1868, and also since 1874. The breeding rookeries occupied more territory.

S. M. Büynitsky, Special Treasury Agent on Pribyloff Islands in 1870, states that there may be 3,000,000 or 7,000,000 seals on the islands; no estimate can be made within 1,000,000 or so of the actual number.

George Wardman, Treasury Agent on Pribyloff Islands from 1881 to 1885, estimates that the seals on St. George numbered 165,000 at most. He thinks that the number of seals has been over-estimated. (Fur-seal Fisheries of Alaska, pp. 12, 39, 69.)

[In this year, according to Mr. D. Webster, the standard weight of skins was lowered from 6 lbs. to 5 lbs. and to 4½ lbs., because of scarcity of 6-lb. skins. Thus, all males from 2 to 5 years old became, and thereafter continued to be, accounted killable.]

831. 1889. Last year of lease of Alaska Commercial Company.

[To complete the catch in this year, we ascertain that some 40,000 very small skins were taken, including even yearlings.]

832. 1890. First year of control of North American Commercial Company, under new lease.

Colonel J. Murray, First Assistant Government Agent, reports that the seals on the Pribyloff Islands have been steadily decreasing since 1880, and attributes this to the excessive slaughter of males 2 to 5 years old.

Mr. Goff states that no 2-year-old seals brought to the killing grounds were turned away in this year. (Senate, Ex. Doc. 49, 51st Congress, 2nd Session.)

Elliott estimates the number of seals on the islands in this year at 959,393. He attributes the decrease in number of seals to:

1. Over-driving on the islands, begun in 1879, dropped till 1882, and then suddenly renewed and continued to date.

140 2. To pelagic sealing, which, according to him, was begun as a business in 1886, and carried on to date. (Parliamentary Paper London, June 1891, p. 53.)

The bearing females on the rookeries are estimated at 350,000, but it is stated that there are also 250,000 not bearing, and not served in 1889 or 1890, owing to dearth of virile males. He states that the condition of seal life on the islands is like that which occurred in 1834 under the Russian régime.

George R. Tingle, now in charge of the islands for the North American Commercial Company, states that late in this season there was a marked increase in the arrival of seals on the islands. (Ex. Doc. No. 49, 51st Congress, 2nd Session, Exhibit P.)

A. W. Lavender, Assistant Treasury Agent, notes that large schools of killer whales were about the islands in October, destroying great numbers of pups. (Ex. Doc. No. 49, 51st Congress, 2nd Session.)

833. 1891. [The result of our investigations and evidence obtained elsewhere detailed shows that the rookeries were this season in better condition than in 1890.]

VII.—The Fur-seal Fishery in the Southern Hemisphere.

834. In dealing with the question of the preservation of the valuable fur seal in the North Pacific Ocean, it is desirable to utilize all the experience that may be obtained in regard to the treatment of the fur-seal in other parts of the world, and the records of these seal fisheries are peculiarly abundant.

835. There are several varieties of seal which have been taken in large numbers south of the Equator which yield that particular close fur so valued in commerce. The three chief varieties are respectively known as the *Otaria Australis* (=*Otaria Falklandica, Arctocephalus Australis, Arctocephalus Falklandicus*), of the South American coasts; the *Otaria Pusilla* (=*Arctocephalus Antarcticus*) of the South African coasts; and the *Otaria Fosteri* (=*Arctocephalus cinereus, Euotaria cinerea*) of the Australasian coasts. But there is much variety in nomenclature, ever since the fur-seal on Amsterdam Island were described as the *Phoca Ursinus* in 1770. Professor Flower, the Director of the Natural History Department of the British Museum, has kindly sent us a Memorandum (Appendix D), descriptive of these differentiations. The southern fur-seals differ specifically, and according to some naturalists generically, from those in the Northern Hemisphere. The fur-seal north of the Equator differs in structural character, and especially in the form of the fore part of the skull, from all seals found south of the Equator.

836. But their habits and manner of life are practically identical, and there are certain conditions common to the presence of all these varieties. For breeding purposes they need rocks in close proximity to the sea, where fogs are frequent. For feeding purposes they require a wide range of ocean, yielding small fish, and squid. For temperature, they prefer temperate and even sub-tropical latitudes, and rarely if ever approach the zone of ice. Ever since the first navigators from Europe entered those seas the fur-seal was found all over the great Southern Ocean in very great abundance from the Galapagos Islands, under the Equator, in the Pacific, the Islands of St. Paul and Amsterdam in the Indian Ocean, and along the shores of Africa and America to the southward of the parallel of 20° south latitude in the Atlantic away south to the groups of islands in 60° and 63° south latitude. But their continued existence in such habitats depends on their not being destroyed or disturbed by man, murrains, or predacious animals.

837. In the North Atlantic at the present day there exists no known species of the fur-seal, although fossil remains indicate their existence in the tertiary period.

838. Extensive sealing operations were conducted in the South Seas about the close of the last century and the first part of the present century. For all this period there are extant many of the actual logs and journals of those engaged in the pursuit.

These "sealers" of the South Seas hailed for the most part from British ports or from those on the east coast of North America, and very considerable profits accrued, although the work was of a particularly arduous and venturesome character.

839. It is noteworthy, however, that South Sea sealing, as a great industry, undoubtedly had its origin in the closing of the fur trade of the North Pacific to English traders and sealers when the Russians prevailed on China, at that time the one chief market for such furs, to close her 141 ports absolutely against all furs brought across the Pacific from the islands and coasts of North America, the monopoly of the whole trade being accorded to the Russians at their great mart of Kiatcha, on the Amoor. Englishmen had become convinced of the great value of the China fur trade, and this policy of restriction on the part of the Russians at once turned maritime enterprise to the South Seas for the necessary supply of furs, and in a very few years made secure the footing of the English and Americans in the China and other markets.

840. At a very early period, the English were already endeavouring to collect fur-seal skins for the China market in the seas known to their regular East India traders. Thus in February 1773, when the vessels conveying Lord Macartney to China called at the Islands of Amsterdam and St. Paul, in the Southern Indian Ocean, in latitude 39° south, they found a sealing party there engaged in carrying out a contract to supply 25,000 skins of the *Phoca Ursina* for the Canton market. The description sent home was as follows:

> The seals are found here in greater numbers in the summer than in the winter . . . . In the summer months they come ashore, sometimes in droves of 800 to 4,000 at a time, out of which about 100 are destroyed, that number being about as many as five men can peg down to dry in the course of the day. . . . . In general they are not shy. . . . . Most of those that come ashore are females, in the proportion of thirty to one male. Whether in these animals nature has fixed on such apparent disproportion between the sexes, or whether, while the females have occasion to seek the shore, the males continue in the deep, has not hitherto been observed by observations here.*

In 1789 the Island of Amsterdam was visited by Captain Cox, of the "Mercury," who reported as follows: "On our first landing we found the shore covered with such a multitude of seals that we were obliged to disperse them before we could get out of the boat. . . . . We procured here 1,000 skins of very superior quality."†

841. The seal-skin for long found its chief market in China and Russia, where it became a coveted and fashionable fur, but its gradual introduction into Europe and America dates from the time when South Sea sealing was first taken in hand as a regular industry. It has been calculated that from first to last not less than 17,000,000 skins were thus placed in the market, and without doubt it was the threatened failure of this enormous supply from the south which about the year 1840 led the Russians, British, and Americans to pay special attention to the supply of fur-seals known to exist in the North Pacific Ocean.

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* G. W. Clark on Eared Seals.—"Proceedings of the Zoological Society of London, 1875," p. 652.

† Ibid., p. 651.

842. The conditions in the South Seas differed categorically from those now prevailing in the North Pacific. The various islands resorted to as breeding places by the fur-seal were not only absolutely uninhabited by man, but were also at the time in the political category of "no-man's-land." As a consequence there was no possibility of instituting any regulation of methods of slaughter, restrictions of numbers or kinds taken, or any limitation of place or season.

843. There were practically no natives (as on the west coast of North America) to lead the way in pelagic sealing. The method of slaughter universally adopted was precisely that of the White raiders of the North Pacific. No labour or effort was wasted in any endeavours to capture or kill the seal at sea. The simple method was invariably adopted of establishing parties of men on all likely beaches, camped in wooden huts or under canvas, and engaged in slaughtering and skinning all the seals that landed, without distinction of age, size, or sex. Captain Weddel pithily writes of the killing in the South Shetlands in 1821–22: "Whenever a seal reaches the beach, of whatever denomination, he was immediately killed and his skin taken; and by this means, at the end of the second year, the animals became nearly extinct. A vessel of from 200 to 400 tons brought out from the home port the men and camping equipment. She would land parties on various beaches, and then would be herself safely moored in some handy harbour. Boats, and even tenders of 30 and 40 tons, would travel between this vessel and the various islands until the season's fishery was over. Occasionally the work of destruction was more expeditiously performed when the barge or brig carrying such landing parties came upon a large rookery already well filled out with seals, for then the whole work of the cruize would be accomplished in a few days." Such sealing parties were found at work by several exploring expeditions, as, for instance, by Her Majesty's ships "Erebus" and "Terror."

844. The more detailed records of these South Sea adventurers yield many points of interest, and it may be well to quote from the earlier descriptions of the fur-seal as indicating how rapidly so valuable a fur secured the notice of the early adventurers, and how speedily their successors brought about the commercial extermination of the seal.

142 845. In the sixteenth century, Sir Francis Drake, the first Englishman who penetrated to the South Seas, frequently reports the presence and comments on the peculiarities of seals. These formed indeed a chief source for the supply of fresh meat. On his great voyage of circumnavigation in 1577–78, seals were taken in the Rio de la Plata, and again in latitude 47° 30′, at an anchorage eventually named Seal Bay; about the middle of the month of May seals were found so plentiful that 200 were slaughtered in one hour.* In the same neighbourhood some years later, in December 1586, Cavendish reports in detail on the seals found in a bay he named Port Desire.†

846. In the observations of Sir Richard Hawkins on his "Voyage into the South Sea" in 1593, we read, in his notes made in the Straits of Magellan: "Of Seals or Sea-Wolves—One day, having ended our hunting of penguins, one of our mariners, walking about the island, discovered a great company of seales or sea-wolves (so called for that they are in the sea as the wolves on the land), advising us that he left them sleeping with their bellies tosting against the sunne. Wee provided ourselves with staves and other weapons and sought to steal upon them at unawares to surprise some of them, and coming down the

* "Hakluyt," vol. iii, p. 733. † Ibid., p. 804–5.

side of a hill we were not discovered till we were close upon them; notwithstanding their sentinell, before we could approach, with a great howle waked them, wee got between the sea and some of them, but they shunned us not, for they came directly upon us, and though we dealt here and there a blow, yet not a man that withstood them escaped the overthrow. They reckon not of a musket shot, a sword pierceth not their skinne, and to give a blow with a staffe is as to smite upon a stone; only in giving a blow upon his snowt presently he falleth down dead.

"After they had recovered the water they did as it were scorne us, defie us, and danced before us untill we had shot some musket shott through them, and so they appeared no more.

"This fish is like unto a calfe, with four legs, but not above a spanne long; his skinne is heyre like a calfe, but these were different to all that I have ever seene, yet I have seene of them in many parts, for these were greater and in their former parts like unto lyons, with shaggy heyre and mostaches.

"They live in the sea, and come to sleepe on the land, and they ever have one that watcheth, who adviseth them of any accident.

"They are beneficiall to man in their skinnes for many purposes; in their mostaches for pick-tooths, and in their fatt to make traine-oyle. This may suffice for the seale, for that he is well known."

847. In the seventeenth century these notices still continue frequent. Thus Henry Brewer landing at Valentine Bay on the 9th March, 1642, writes: "Saw among the rocks several sea lions and sea dogs, about the bigness of a good European calf; some of a greyish, some of a brownish colour, making a noise not unlike our sheep."

848. Dampier, in 1683, gives the following very full general description of seals:*

The seals are sort of creatures pretty well known, yet it may not be amiss to describe them. They are as big as calves; the head of them like a dog, therefore called by the Dutch, the "sea hounds" Under each shoulder grows a long thick fin; these serve them to swim with when in the sea, and are instead of legs to them when on the land, for raising their bodies up on end by the help of their fins or stumps, and so having their tail parts drawn close under them, they rebound as it were, and throw their bodies forward, drawing their hinder parts after them, and then again rising up and springing forward with their fore parts alternately, they lie tumbling thus up and down all the while they are moving on land. From their shoulders to their tails they grow tapering like fish, and have two small fins on each side the rump, which is commonly covered with their fins. These fins serve instead of a tail in the sea, and on land they sit on them when they give suck to their young. Their hair is of divers colours, as black, grey, dun, spotted, looking very sleek and pleasant when they come first out of the sea. For these at John Fernando have fine short fur, the like I have not taken notice of anywhere but in these seas. Here are always thousands, I might say possibly millions, of them, either sitting on the bays, or going and coming in the sea round the island, which is covered with them (as they lie at the top of the water playing and sunning themselves) for a mile or two from the shore. When they come out of the sea they bleat like sheep for their young, and though they pass through hundreds of other's young ones before they come to their own, yet they will not suffer any of them to suck. The young ones are like puppies, and lie much ashore, but when beaten by any of us, they, as well as the old
143 ones, will make toward the sea, and swim very swift and nimble, though on shore they lie very sluggishly, and will not go out of our ways unless we beat them, but snap at us. A blow on the nose soon kills them. Large ships might here load themselves with seal-skins and trane oyle, for they are extraordinarily fat. Seals are found as well in cold as in hot climates.

849. In the British Museum are kept the admirably written MSS. of certain other voyagers, and in that relating the experiences of Captian Strong in the "Welfare," in 1689, the writer, named Simson, states that

* "Dampier's Voyages," vol. i, p. 89.

on the 12th September, at the Island of Juan Fernandez, "We went on shore, but could hardly sett a foot down, the seals lay so thick on the place. Besides we saw a great number of sea-lyons, not unlike other lyons in countenance, colour, and fierceness. They had no ffeet but ffins.

"As for the seals they were of a dark colour and grissled, but under the long pile there was couched a fur of an incomparable fineness, that if it could be felt it would answer all ye ends of beaver furr, wherefore a great many of their skins were brought to England."

This is probably one of the earliest accounts of the commercial value of the fur-seal skins.

850. In the eighteenth century navigators continue to report the abundance of seals. Thus Captain Wood Rogers, taking Alexander Selkirk off the Island of Juan Fernandez in 1709, records a lengthy description of the fur-seal seen there at that date.*

851. The amount of information at this period extant on the fur-seal is well emphasized by Chaplain Richard Walter, of Lord Anson's flagship which refitted at Juan Fernandez from June to September 1740. This chaplain gives a very full and elaborate account of all the natural features of the islands and of their Fauna and Flora, but he dismisses seals in the single sentence: "The seal, numbers of which haunt this island, hath been so often mentioned by former writers that it is unnecessary to say anything particular about them in this place."

852. Captain Carteret, writing of Masafuera in 1767, says: "The seals were so numerous that I verily think if many thousands were killed in a night they would not be missed in the morning; we were obliged to kill a noted number of them as, when we walked the shore they were continually running against us, making at the same time a most terrible noise. These animals yield excellent train oil, and their hearts and plucks were very good eating, being in taste something like those of a hog, and their skins were covered with the finest fur I ever saw of the kind."

853. Captain Cook, in his official Report of the voyage of the "Resolution" in 1771, calling attention to the great number of fur-seal on New Georgia, is generally credited with being first to direct the attention of the English adventurers to the commercial advantages of South Sea sealing. But before this period, and probably following on the suggestions made as early as 1690, Englishmen were already at work on this new harvest of the sea. Thus, when Bucareli, the Spanish Governor at Buenos Ayres, sought to recover the Falkland Islands for Spain in 1770, his first task was to forcibly eject from their established port and station the "English sealers" at port Egmont, an act for which Spain afterwards made full restitution.

854. Before the end of the eighteenth century sealing in the South Seas had assumed very extensive dimensions. Not only were the furs regarded as of great value, but the oil, technically known at the time as "train-oil," assumed an important commercial position. Attention seems to have been first directed to the islands and coasts of South America. We hear of no less a number than 1,000,000 skins being taken to Canton, from the neighbourhood of Masafuera in one year, in 1798, while before the seals were exterminated on that one island in 1807, no less than 3,500,000 skins had been taken.

855. All along the coast of Chile and Peru, even as far north as the Islands of St. Felix and on the Galapagos group, seals were hunted.

* Kerr's "Voyages," vol. xi.

By the end of the century there were not less than thirty New England vessels so employed on that coast. Meanwhile, in 1783, Dame Haley, of Boston, had sent a 1,000 tons ship, the "States," down to the Falkland Islands, where she procured a cargo of 13,000 skins of fur-seal which were sold in Boston at 50 cents a-piece, shipped to Calcutta, where under the name of "sea-otter" they were sold for 2 dollars, and eventually reaching Canton, where they fetched 5 dollars per skin.

856. The methods of slaughter involved rapid extirpation in any given breeding place, and sealers came to be perpetually discovering and exhausting in succession every place to which seal resorted.

144 The islands around South America, Tristan d'Acunha, the South Orkneys, South Georgia, and Sandwich Land, were all in turn discovered, and hundreds of thousands of skins taken from each for a long series of years. Thirty vessels—eighteen being under the American, ten under the English, and two under the Russian flag, in the three years 1819–22, took more than 600,000 seals from the South Shetland group, completely exhausting the seal race there for the time.

857. Sealing-vessels had as early as 1790 crossed the Atlantic and worked up the coast of Western Africa as far as 20° north latitude, obtaining many seals. Others worked steadily along the open sea to the south, successively landing upon the various groups of islands—Bouvet and Lindsay, Marian, and Prince Edward, the Crozets, Kerguelen, and MacDonald.

Yet further to the eastward, seals were obtained on the following islands: Royal Company, Emerald, Antipodes, Campbell, Macquarie, Auckland, and Bounty, while one vessel reported in Sydney a catch of 40,000 from the Fiji Islands, probably a locality named to shroud the real killing place.

858. At this period, and especially from 1810–20, there sprung up a very large transhipment trade in fur-seal skins in the new port of Sydney, reaching hundreds of thousands in five years.

Enterprising men chiefly on the Reports of Vancouver and Cook had already found their way to the coasts of "New Holland," and away round the islands of New Zealand. Bass had reported the reefs off Cape Barren Island, off the north coast of Tasmania, "covered with fur-seal of great beauty." Cook had found seals in great numbers on the rocks in Dusky Bay in New Zealand in 1773.

859. But the severe process universally adopted speedily exhausted the different rookeries, and by the year 1830 we meet with strenuous complaints that all the known killing grounds were depleted, and that new grounds must be discovered. Fanning and others pointed out, however, the significant fact that vast numbers of seals were still to be seen cruizing about at sea, a remark of special and new significance to the owners of the North Pacific rookeries in 1892.

860. It is a matter of some difficulty to estimate the total number of seals taken in the South Seas during the period of the excessive energy of the great sealing industry. But there are actual records which, added together, bring the acknowledged total to more than 16,000,000.

These seals were taken from about thirty different island groups or coast districts on the mainland, and they were all taken by the one method of indiscriminate slaughter on shore.

It is probable that this wholesale slaughter did not extend over more than seventy years, but it is certain that at the end of the period the fur-seals were so terribly reduced in numbers that even the sixty years of subsequent rest and total cessation of killing have not sufficed to bring about any effectual restoration of the numbers of years gone by.

861. Equally valuable to the treatment of the seals in the North Pacific is the more recent history of sealing in the South Seas. The excessive slaughter of seals by man on the breeding islands alone had brought about the commercial extermination of the once abundant fur-seal before the year 1830.

From that period for thirty or forty years sealing was carried on but fitfully and seldom. Sir John Ross, writing of Kerguelen Land in 1840, says: "Of marine animals the sea-elephant and several species of seals were formerly in great abundance, and annually drew a number of vessels to these shores in pursuit of them. They have now, after so many years of persecution, quite deserted the place or have been completely annihilated." All other writers and travellers give similar descriptions of the methods and results of this excessive slaughter. The officers of Her Majesty's ship "Beagle," surveying the intricate passages of Magellan's Straits and Tierra del Fuego in 1830, speak in similar strain, and it is noticeable that Charles Darwin, when visiting these old-time resorts of the fur-seal in 1832–34, and contributing so much of permanent value to natural history, does not make even a single allusion to the fur-seal.

862. It is instructive to notice, however, that in later years, as civilized nations began to assert sovereignty over these wild shores, so did they claim the right to the seals and to control the breeding places. Augustus Earle, who has published an interesting account of Tristan d'Acunha in the year 1834, thus recounts the experience of one of the islanders named Richard: "By one of those sudden acts of treachery and cruelty which have been so common on the coast of South America the vessel to which he belonged while quietly engaged in picking up seal on the shore was seized by an armed Republican cruizer on pretence of her occupation being unlawful, and her crew (for whom Richard had the honour of cooking) were lodged in durance vile, and the only chance they had of escaping from perpetual imprisonment was by entering the Republican army."

863. All accounts speak of change in the habits of the fur-seal. In Tristan d'Acunha they are described as having deserted the open beaches and taken to haunting caves and ledges inaccessible to man. On the Auckland group they now resort to the beaches and ledges below the steep cliffs on the western shores, where the perpetual heavy surf renders it impracticable for man to land. But on some islands, as on Adam's Island, the sealers have made roadways for themselves over the rocks and ice of the interior down on to these beaches. This is, however, not always practicable, and it is said that under the protection of intractable precipices the fur-seal are unmolested and very plentiful on MacDonald's Island, one of the Kerguelen group.

864. A traveller, Mr. Chapman, visiting Adam's Island in 1889, writes: "We landed at the cave where the seal huts are. . . . These sealers make an easy road across the island, and when they arrive at the cliffs at the other side, lower some of their number to the ledges and caves where they slaughter seals. The slayers and the skins are then drawn up. It is wholly illegal, but it goes on, so that the fur-seal are nearly exterminated."

865. The naturalists on the "Challenger" frequently observed fur-seal in 1873–74. Of Nightingale Island it is reported: "The caves, with the sloping ledges leading up to them, are frequented by fur-seals. Four years before the visit of the expedition 1,400 seals had been killed on the island by one ship's crew. Seals were very much scarcer in 1873, but the island was visited regularly once a-year by the Tristan people.

of Magellan, reports in 1889 that the American schooners take no notice of the interdiction, although only one of them, the "Sarah W. Hunt," has as yet been specifically prohibited from such illegitimate sealing. He also reports that the Chilean Government are contemplating more stringent measures of protection for the few remaining seals.

879. The Chilean Government has always recognized the value of the seal-fishery, although since the earlier years of the century it has been felt that the seals were nearly extirpated. We have frequent allusions to Government control. Thus, in 1866, Her Majesty's ship "Topaze," visiting the Island of Juan Fernandez, reports ten inhabitants engaged in sealing under licence from the Chilean Government. In 1875 Her Majesty's ship "Challenger" reports finding a Chilean leasing the right from this Government for 200*l.* a-year, and employing fifty or sixty men on Juan Fernandez and Mas-à-Fuera for the purpose of collecting seal-skins.

880. In all these places, and especially in the districts around the Horn, the enforcement of strict regulations, especially instituted
147 for avoiding the taking of gravid females and disturbance of males, females, and young during the early portion of the period they spend ashore, is certain to permit of a great increase in the supply of fur-seal.

881. In some of the several British Colonies where the fur-seal is found, specific regulations have been in force for some time past.

882. In the Falkland Islands there is legislative provision embodied in the Ordinance No. 4 of 1881 for the protection of the fur-seal, which is already having an excellent effect, so far as it can be enforced. Its main provisions (see Appendix E) are a close time from the 1st October to the 1st April, and penalties and forfeiture against individual owners of vessels and others killing or permitting to be killed any fur-seals during those months.

883. Recent inquiries made of those experienced in sealing in those islands elicited the invariable opinion that the main causes of the present depletion has been the reckless and indiscriminate slaughter of the seals whenever they land, and especially during the breeding season. In some cases the stocking of farms and people taking up their abode in the neighbourhood of the seal rookeries has certainly driven the seals to other resorts. But the killing of seals has never been attempted at sea, and is entirely confined to parties of sealers landed from boats and schooners, who club, shoot, and spear the seals on shore. The most serious complaints are that foreign schooners cruize along the coast and land sealing parties regardless of the statutory close season.

884. Experienced men in the Falkland Islands assert that the fur-seal are known not infrequently to desert favourite landing places when they find they are molested for others where they rest and breed in peace.

885. The Government of the Colony of the Cape of Good Hope has for very many years paid attention to the fur-seals frequenting the coast and islands under its authority. Thus, on the 12th April, 1844, a Proclamation was issued:

> His Excellency the Governor, having been pleased to decide that the Seal Islands in Mossel Bay shall not be granted on lease for the present, hereby prohibits all persons from disturbing the seals on the said island, and warns them from trespassing there after this notice on pain of prosecution.

886. A special Report from Mr. C. H. Jackson, the Government Agent in charge of the Seal and Guano Islands (Appendix B), speaks of indiscriminate slaughter on shore as the chief cause of the present deple-

tion; and points out that, for lack of a close time during the breeding season between November and January, a great number of females have been destroyed "either about to give birth or suckling their young." Pelagic sealing is unknown, the system of killing adopted being that of landing men in boats, armed with clubs. He speaks specially of the ease with which seals are scared from their resorts by steamers and other vessels coming close in. He also mentions that "by a happy provision of nature a female seal will suckle any young one, whether her own or not."

887. There are no special protective laws, but the islands are Government property and are leased upon short leases, so that the Government has power, if it will, to control this profitable fishery.

888. In the Australian waters fur-seals were found on the coasts and islands of Victoria, Tasmania, and New Zealand in very great abundance, and they are still seen and obtained.

889. In regard to Victoria, Sir F. McCoy reports as follows:

(1.) The seal fishery of Australia was never so extensive as that of the North Pacific, and for more than thirty years the trade in Australian fur-seal skins has entirely ceased, although of some extent in Sydney a little before that time.

(2.) In Victoria, the only fur-seal is the eared seal (*Euotaria cinerea*), the size, shape, and habits of which very nearly recall those of the North Pacific. The decline or destruction of the fishery is certainly attributable to the indiscriminate slaughter of the seals on the few islands off the south coast, especially in Western Port, where the old males and gravid females resorted in the summer to bring forth and tend the young. At present a few islands only are frequented by those seals, now in the breeding season, and the number of individuals is too small to furnish any trade.

(3.) The fur-seal fishery was conducted simply by manning a boat suitable for landing on the islands, the landing usually taking place at night, and then the seals were killed indiscriminately by clubbing them on the nose with large sticks. The skins were chiefly exported from Sydney.

(4.) No measures effective for the protection of the fur-seal fisheries have been undertaken on any large scale by any of the Australian Colonies, but some years ago I recommended the Victorian Government to prohibit the killing of seals on the 148 small islands which they frequent near Phillip Island, and although the number has somewhat increased in consequence, it is far too small to furnish a trade.

(5.) The Australian fur-seals were never fished for in the open ocean.

(6.) Generally the life history of the Victorian fur-seal exactly resembles that of the North Pacific, following shoals of fish in the open ocean, but coming on the islands to breed in the latter part of the summer.

890. Sealing was a leading industry in New South Wales, especially in the years 1810–20. Several firms fitted out large schooners, and great numbers of skins were secured, especially from places like Macquarie and the Antipodes Islands. Some years ago the Government issued an order prohibiting the killing of seals on the mainland and islands of the Colony, and they are reported as increasing in numbers, as, for instance, around Port Stephens.

891. From Tasmania sealing has been conducted on many neighbouring islands, the seals all being shot or clubbed on the shore. No measures of preservation have been taken until 1891, when a Government Proclamation was issued: "The taking of seals, known by the name of seals or any other local name, in Tasmania and its dependencies, is hereby prohibited for a period of three years from the 26th July, 1891." The chief difficulty found is with schooners from other parts marauding on the rookeries.

892. In New Zealand at the beginning of this century seals were numerous in several places along the coast around Port Chalmers, along the west coast, near Westport, round Stewart's Island, and in other places. All the neighbouring islands, such as the Chatham, Macquarie, Bounty, Campbell, and Antipodes groups, were well-known haunts.

Mr. Yate, a missionary, writing in 1835, tells of several establishments for the seal fishery on the coast of New Zealand. But fifteen or twenty years of persistent and indiscriminate slaughter on shore had practically exterminated the seal in 1840.

893. As to the causes of the depletion, Mr. F. Chapman, writing from Dunedin, says: "As to the cause of this there is but one answer: reckless killing and disturbance in the rookeries. Mr. Dawson need not trouble himself about pelagic sealing; there is not and never was such a thing in these waters."

894. In the early years of this century the port of Sydney did a large trade in seal-skins, and it is undoubted that with rise in market prices of more than ten-fold over that period, the industry may well be revived by judicious Government regulations duly enforced.

The main difficulty in these seas, as elsewhere, is the raiding ashore, especially in the breeding season, by unauthorized persons. It is to be hoped that the outcome of the Behring Sea negotiations may be international agreement as to the illegality of all such proceedings, and thus all territorial Powers will be empowered to execute regulations against all comers, so necessary to the preservation of so important an industry as that of sealing.

895. It will be well if the Governments of New Zealand, Tasmania, Victoria, the Cape of Good Hope, and the Falkland Island, as well as those of the Uruguayan Republic and Chile, take steps to secure for themselves any international advantages for the proper protection of the fur-seal in the South Seas which may be determined to be applicable under international sanction in the North Pacific. As a commencement, each of these Governments should forthwith make statutory provision for close seasons, restriction of numbers taken, and other matters affecting seal life within their territorial dominions and the waters thereof.

896. A further point in connection with South Sea sealing remains to be dealt with.

Some of the older sealers who gave us evidence mentioned their opinion that the fur-seal of the Pribyloff Islands were the overflow of the fur-seal of the South Sea when disturbed and harassed by the indiscriminate slaughter above detailed.

We observe also that the United States authority, Mr. Elliott, in his "Monograph on the Fur-seal" (p. 6), writes: "It appears as if the fur-seals had originally passed to Behring Sea from the parent stock of the Patagonian region, up along the coast of South America, a few tarrying at the dry and heated Galapagos Islands, the rest speeding on to the northward, disturbed by the clear skies and sandy beaches of the Mexican coast, on and up to the great fish-spawning shores of the Aleutian Islands and Behring Sea. There on the Pribyloff group and the bluffy Commander Islands they found that union of cool water, well-adapted landing, and moist foggy air which they had missed since they left the storm-beaten coasts far below."

897. We have, however, received from the Director of the Natural History Department of the British Museum a very valuable Memorandum (Appendix D), pointing out the structural and other differences which distinguish the various species of fur-seal, and
149 which clearly indicate that the seals frequenting the North Pacific do not migrate south of the Equator. Nor can we hold out any hope that, as was expressed by a New Zealand authority, the persecution of the fur-seal in the North Pacific may drive them south to replenish New Zealand rookeries.

898. The relative importance of the South Sea fishery is insignificant at the present day in comparison with that of the North Pacific. In

the latter the last full years gave a total catch of about 190,000, whereas the total catch south of the Equator only reaches 25,000. But the South Seas, during the first seventy years of the fisheries, produced at least 16,000,000 seals, whereas from the North Pacific it seems probable that not more than 5,000,000 have been, in all, secured in 110 years. To reinstate in some degree the South Sea fisheries would thus be to revive, if only partially, a great and most profitable industry.

899. At the same time, in the immediate matter of the preservation of the fur-seal in the Northern Pacific, it is well to bear in mind that actual experience in the South Seas proves incontestably the following among other facts:

(i.) Excessive slaughter on shore, in the entire absence of any pelagic sealing, results in commercial extermination.

(ii.) Excessive slaughter and disturbance causes absolute depletion and desertion in given breeding places, leading the surviving seals to seek other resorts.

(iii.) As Fanning has recorded, while old rookeries are being depleted and new ones being taken up, more seals are seen at sea than ever.

900. This is a timely object lesson for the North Pacific, where from two known breeding resorts, for the past twenty-five years, so great a number of skins have been taken (§ 43 *et seq.*) by excessive slaughter on shore, and complaints are now made officially that unless strong measures of rest and recuperation are promptly adopted the seals frequenting these resorts will disappear. Undoubtedly, they will seek other breeding places.

901. Mr. Blaine has done good service in drawing attention, in his despatch of the 17th December, 1890, to the disastrous results in the South Seas following on indiscriminate and unrestricted slaughter of the fur-seal. There has never been recorded any more self-evident and striking example of the consequences of excessive slaughter by man. It is therefore useful to bear in mind the precise character and circumstances of the seal fishery of the Southern Hemisphere.

VIII.—Marketing the Seal-skins.

902. The process of preparing the seal-skins for the market, costing, on the whole, 18*s.* to 20*s.* per skin, is the work of a prosperous industry in London.

The skins are landed in the docks, and sorted for size, quality, and kind, ready for the sale-room. Eventually they arrive, thus graded, at the factory, and are dealt with in batches. The process commences with the removal of the fat and flesh left on the skins by careless skinning; the next step is thoroughly to cleanse the skin by hot-water washing and stretching, after which the skins are deftly shaved down to the requisite thinness. They are then treated in a hot chamber, and the outer hair taken off. The completing stages are those of dyeing to a uniform colour, and finally shaving the skin down to the necessary thinness. At every stage much technical skill and judgment are required.

903. It is a noteworthy fact, that nearly all fur-seal skins are taken to London to be dressed and sold. The fur-seal industry thus gives employment to much shipping on the Pacific, to railways across the American continent, and to shipping on the Atlantic; while in the business of insurance, and in the sale of the raw and finished skins, both wholesale and retail, as well as in the processes above described, very considerable profits are realized.

CONCLUDING REMARKS.

904. In commencing our Report, we explained the steps taken to carry out the duties assigned to us. In Part I we have given the conclusions to which our investigations have led us in regard to the facts and conditions of seal life in the North Pacific Ocean, and to the measures necessary for the proper protection and preservation of the fur-seal. In Part II and in the Appendices there are presented, in fuller detail, the results of our investigations, together with such collateral information or evidence as appears to be necessary to enable just conclusions to be arrived at.

905. In conclusion, we would wish to record our high appreciation of the ready response afforded to our inquiries by the numerous persons to whom we addressed them, whether in correspondence or by word of mouth.

906. To the officials of the United States Government, to the Commanding Officers of the men-of-war and revenue-cruizers, as well as to the representatives of the Alaska Commercial and North American Commercial Companies, we are greatly indebted for the hospitality and courtesy they uniformly extended to us, as well as for the zealous and ready assistance they rendered us in our endeavours to obtain the information of which we were in search.

907. From the Admiral in command of the Pacific Station and the Commanders, officers, and men of Her Majesty's ships "Nymphe," "Porpoise," and "Pheasant," we received every assistance and aid, and they secured for us much valuable information.

908. We would venture specially to commend the industry, zeal, and ability with which, throughout our investigations and negotiations, Mr. Ashley Froude has conducted the arduous duties of Secretary to the Commission and Joint Secretary to the Joint Commission. We would also beg that the Government of Canada may be informed of the painstaking, capable, and thorough manner in which we have been assisted throughout by Mr. James Macoun.

All of which we humbly submit, for the gracious consideration of your Majesty.

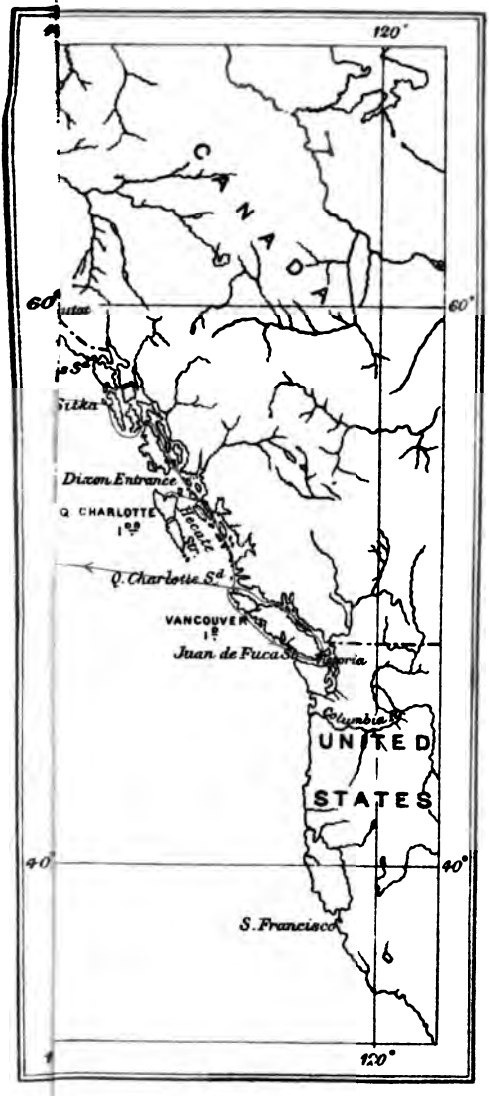
(Signed) GEORGE BADEN-POWELL.
GEORGE M. DAWSON.

(Signed) ASHLEY FROUDE, *Secretary.*

JUNE 21, 1892.

Maps, Nos 1 to 5 to face p 150

I.



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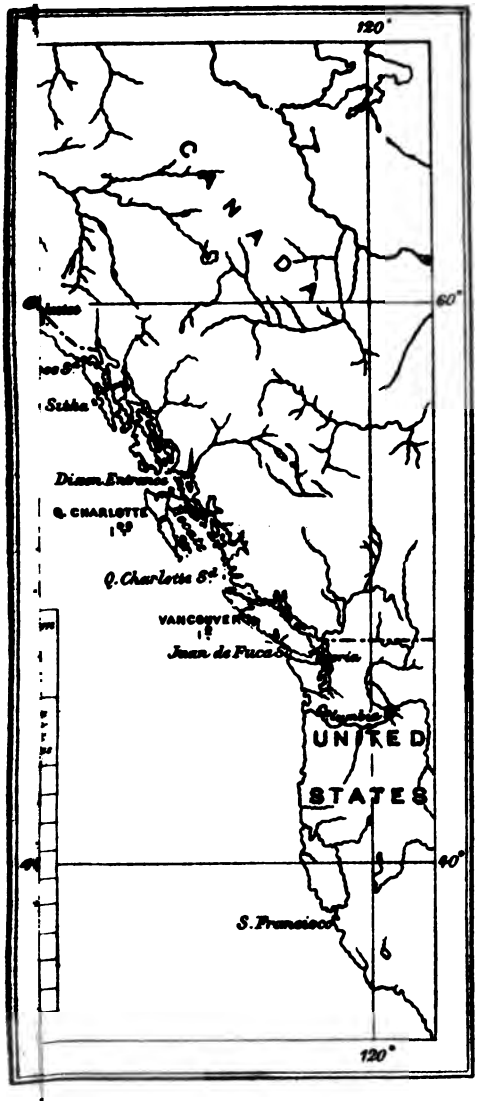

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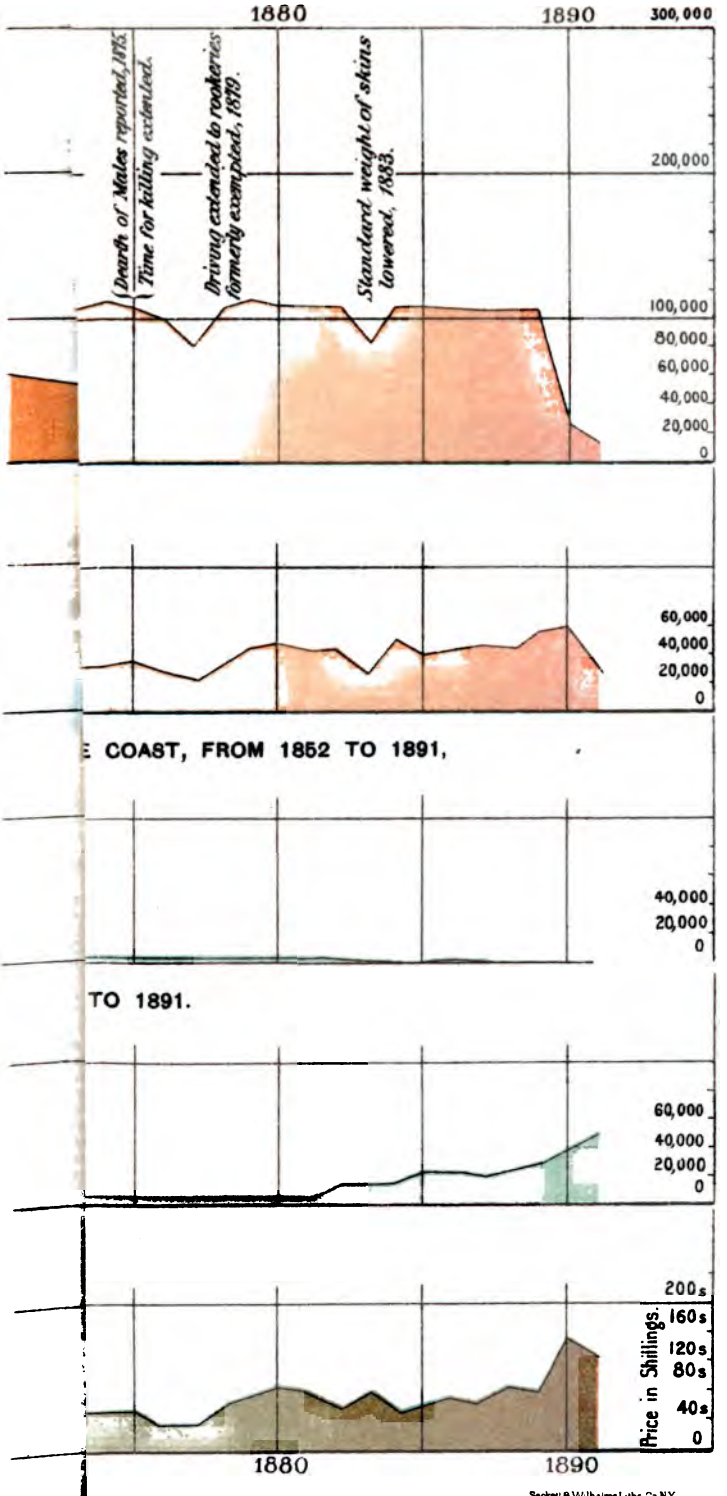

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APPENDIX (A).

LIST OF PERSONS AND AUTHORITIES SUPPLYING EVIDENCE.

List of those who gave Personal Evidence and Information to the Behring Sea Commission.

No.	Name.	Place and Profession.
1	Dr. Acland	Medical Officer, St. Paul Island.
2	Mr. Alexander	Trader, Masset, Queen Charlotte Islands.
3	Mr. Ayde	Signal Officer, Neah Bay.
4	Mr. Audieuko	A. D. C. to Commandant, Petropaulouski.
5	Mr. G. A. Baldwin	Bookkeeper, St. Paul Island.
6	Colonel Barnes	Assistant Treasury Agent, St. Paul Island.
7	Mr. Bentzon	Formerly employé, Hudson Bay Company, Port Simpson.
8	Captain Blair	Schooner "Leon," Petropaulouski.
9	Captain Brandt	Russian gun-boat "Aleut."
10	Mr. Boscowitz	Victoria, British Columbia.
11	Mr. Stanley Brown	Special Agent of United States Government, Pribyloff Islands.
12	Mr. J. Burns	Hunter, St. Matthew Island.
13	Captain Baker	Sealing-schooner "Viva," Victoria, British Columbia.
14	Mr. Clifford	Manager, Hudson Bay Company, Port Simpson.
15	Captain Coulson	United States Revenue-cruizer "Rush."
16	Captain Cox	Agent for E. B. Marvin and Co., Victoria, British Columbia.
17	Captain W. Cox	Sealing-schooner "Sapphire," Victoria, British Columbia.
18	Mr. R. Cunningham	Fur-trader and owner of Canneries, Port Essington, British Columbia.
19	Mr. G. Cunningham	Ditto.
20	Mr. Campbell	Vancouver, British Columbia.
21	Mr. F. Cope	Ditto.
22	Captain Dodds	Sealing-schooner "Maggie Mac," Victoria, British Columbia.
23	Mr. Dirks	Agent of Alaska Commercial Company, Atka Island.
24	Mr. J. Earle, M. P.	Victoria, British Columbia.
25	Captain Edwards	Vancouver, British Columbia.
26	Mr. Emmons	Collector of Customs, Unalaska.
27	Lieutenant Emmons	United States ship "Pinta," Sitka.
28	Edensaw	Haida Chief, Masset.
29	Mr. R. Finlayson	Victoria, British Columbia, formerly employé of Hudson Bay Company.
30	Mr. Fowler	Agent of North American Commercial Company, St. Paul Island.
31	Mr. Fraser	Vancouver, British Columbia.
32	Mr. Foster	Ditto.
33	Mr. Fergusson	Ditto.
34	Mr. Flummerfelt	Victoria, British Columbia.
35	M. Grebnitzky	Administrator of Commander Islands.
36	Mr. Grey	Alaska Commercial Company, Unalaska.
37	Mr. R. H. Hall	Victoria, British Columbia.
38	Mr. R. Hall	President of Board of Trade, Victoria, British Columbia.
39	Mr. T. B. Hall	Secretary of ditto.
40	Mr. J. Henderson	Vancouver, British Columbia.
41	Captain Healey	United States revenue-cruizer "Bear."
42	Rev. — Hopkins	Bella Bella.
43	Mr. Hammersley	Vancouver, British Columbia.
44	A. Johnson	Indian hunter, Shakaan.
45	"Captain" Jack	Native, St. Lawrence Island.
46	Lieutenant Jarvis	United States revenue-cruizer "Bear."
47	Rev. — Jennings	Missionary, Port Essington.
48	Jesuit Missionaries	Hazen Bay, Cape Vancouver.
49	Mr. Jones	Victoria, British Columbia.
50	M. Kamyakoff	Commandant, Petropaulouski.
51	Governor Knapp	Sitka.

List of those who gave Personal Evidence and Information, etc.—Continued.

No.	Name.	Place and Profession.
52	M. Kluge	Agent of Russian Seal-skin Company, Copper Island.
53	Captain Lavender	Treasury Agent, St. George Island.
54	Mr. J. Linguist	Agent for Hutchinson, Kohl, and Co., Petropaulouski.
152		
55	Mr. Lockarby	Hudson Bay Company, Port Simpson.
56	A. Losh	Kitkatla Indian, Port Essington.
57	Captain Laing	Victoria, British Columbia.
58	Martin Lunberg	Quartermaster, steam-ship "Danube."
59	Mr. Milne	Collector of Customs, Victoria, British Columbia.
60	Captain Miner	Sealing-schooner "Henry Dennis," Seattle.
61	Captain Meyer	Steam-ship "Danube."
62	Colonel Murray	Assistant Treasury Agent, St. Paul Island.
63	Mr. Morgan	Agent of Russian Seal-skin Company, Behring Island.
64	Mr. Malanwanski	Late Agent, Alaska Commercial Company, Behring Island.
65	Mr. McManus	Newspaper reporter, sealing-schooner "Otto."
66	Captain Maynard	United States ship "Pinta."
67	Mr. McKenzie	Fur-trader, Masset, Queen Charlotte Islands.
68	Captain McKenzie	Sealing-steamer "Eliza Edwards."
69	Mr. Macgowan	Vancouver, British Columbia.
70	Dr. Macalpin	Ditto.
71	Mr. Munsie	Owner of sealing-schooners, Victoria, British Columbia.
72	Captain L. Maclean	Sealing-schooner "Favorite," Victoria, British Columbia.
73	Mr. E. B. Marvin	Owner of sealing-schooner, Victoria, British Columbia.
74	Mr. R. Neumann	Agent of Alaska Commercial Company, Unalaska.
75	Mr. Newman	Fur-trader, Aleutian Islands.
76	Mr. J. C. Nixon	Owner of sealing-schooners, Seattle.
77	Mr. Oppenheimer	Mayor of Vancouver, British Columbia.
78	Mr. Redpath	Manager of North American Commercial Company, St. Paul Island.
79	Captain Reiter	United States ship "Thetis."
80	Mr. Rousefell	Vancouver, British Columbia.
81	Mr. R. Robertson	Ditto.
82	Mr. Justice Swan	Port Townsend.
83	Captain Spring	Ditto.
84	Rev. — Stevens	Port Essington.
85	Mr. E. R. Smith	Ship-owner, Yokohama.
86	Mr. Stevenson	Vancouver, British Columbia.
87	Mr. G. R. Tingle	Superintendent, North American Commercial Company, Pribyloff Islands.
88	M. Tillmann	Russian Government Agent on Copper Island.
89	Mr. Tatlow	Vancouver, British Columbia.
90	Captain Warren	Victoria, British Columbia.
91	Mr. Walsh	Navigator of sealing-schooner "Wanderer."
92	Mr. Washburn	Agent of Alaska Commercial Company, Kodiak Island.
93	Mr. D. Webster	Resident Agent of North American Commercial Company, St. George Island.
94	Major Williams	United States Treasury Agent, St. Paul Island.
	About 100 natives, Aleuts and Indians, as follows:	
	Aleut natives	Village, St. Paul Island.
	" "	North-east Point, St. Paul Island.
	" "	Unalaska.
	" "	Atka Island.
	" "	Attu Island.
	" "	Copper Island.
	" "	Village, Behring Island.
	" "	North Rookery, Behring Island.
	Indians (Tlinkit)	Sitka.
	" (Klawok)	Shakaan (Hanega tribe, from Klawok).
	" (Tshimsian)	Port Simpson.
	" (Hailtzuk)	Bella-Bella.
	" (Aht)	Clayoquot Sound.
	" (Haida)	Masset, Queen Charlotte Islands.
	" (Kwakiool)	Nawitti, Hope Island.
	" (Aht)	Neah Bay (Makah tribe).
	" "	Indian Office, Victoria, British Columbia (various tribes).

153 The following are the sources from which written information has been obtained by, or at the request of, the Behring Sea Commission:

1. *Colonial Governments.*

Cape of Good Hope.
Falkland Islands.
Newfoundland.
New South Wales.
New Zealand.
Tasmania.
Victoria.

2. Foreign Governments.

Argentine Republic.
Brazil.
Chile.
Japan.
Monte Video.
Russia.
Uruguay.

3. Her Majesty's Consuls abroad.

Canton.
Honolulu.
San Francisco.
Shanghae.

4. Officers of Her Majesty's Ships and Canadian Government Officials.

Admiral Hotham, C. B., Senior Naval Officer, Esquimalt.
Commander Turner, R. N., Her Majesty's ship "Nymphe."
Commander Burr, R. N., Her Majesty's ship "Porpoise."
Lieutenant-Commander Hadley, R. N., Her Majesty's ship "Pheasant."
Mr. A. R. Milne, Collector of Customs, Victoria, British Columbia.
Indian Agents on coast of British Columbia, through Mr. A. W. Vowell.

5. Miscellaneous.

Mr. de Bunsen, British Legation, Tôkiô.
Earl Brownlow.
Captain Devereux, Graving Dock, Esquimalt.
Professor Flower, C. B., Natural History Museum, London.
Captain David Gray.
Dr. Günther, Natural History Museum, London.
Hudson Bay Company.
Mr. A. W. Huson.
Sir George Curtis Lampson, Bart.
Mr. A. Lafone, M. P.
Mr. J. W. Mackay.
Professor Sir F. McCoy, Melbourne.
Sir R. Morier, G. C. B.
Mr. Murray, "Challenger" Office, Edinburgh.
Baron Nordenskiold.
Mr. Sclater, Zoological Society, London.
Mr. Justice Swan.
Mr. E. Maunde-Thompson, British Museum.
Mr. W. C. Van Horne.

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154 APPENDIX (B).

CIRCULAR TO, AND REPLIES FROM, COLONIAL AND FOREIGN GOVERNMENTS.

The following Circular of Inquiry was prepared by the Behring Sea Commissioners, and forwarded at their request to the Governments of—

The Cape of Good Hope.
The Falkland Islands.
New South Wales.
Victoria.
Tasmania.
New Zealand.
Chile.
Argentine Republic.
Brazil.
Uruguay.
Japan.

Such replies as have been received are given below.
In addition to this Circular, direct correspondence was entered into with the authorities on the same subjects.

Circular of Inquiry.

The Department of Fisheries of the Dominion of Canada, in connection with questions relating to the fur-seal fisheries of the North Pacific, is desirous of obtaining all possible information relating to the fur-seal fisheries of the Southern Hemisphere. The southern fur-seal, or "sea-bear" (of the family of eared seals, or *Otaridæ*), is known to have formed the object of an important industry in the early part of

the present century, but the islands on which it once abounded are now reported, and believed to be, almost entirely depleted of seals. As the habits and life-history of the fur-seal of the North Pacific appear to be closely similar to those of the allied seals of the Southern Hemisphere, it is thought probable that the history of the decline of the southern fisheries may afford some facts having a direct bearing on the fur-seal fisheries of the North Pacific, and may serve to indicate a proper mode of protection to be accorded to these fisheries, if such should be found necessary.

In this connection, it would be of particular interest to know for each of the seal islands or sealing-grounds of the Southern Hemisphere:

1. Whether the decline or destruction of the fishery is attributable to the slaughter of the seals while on shore at their breeding-places, or to their pursuit at large on the circumjacent ocean.

2. In what manner the fur-seal fishery has been or is conducted in each particular locality.

3. Whether any, and, if any, what measures have been taken by various Governments towards the protection of the fur-seal fisheries in their territories or in places within their jurisdiction; and, further, if any such measures are known to have proved successful in preserving or rehabilitating the fisheries.

4. Generally, any particulars as to the life-history of the animal, its migration, season of bringing forth its young, and the habits of the seals while engaged in suckling and rearing the young.

It is also particularly requested that copies of any printed documents or Reports referring to the fur-seal fisheries, or embodying Regulations provided for these fisheries, may be furnished.

Reply to Circular received from the Government of the Cape of Good Hope.

MINUTE.

In acknowledging the receipt of his Excellency the Governor's Minute of the 25th August last, inclosing a despatch from the Right Honourable the Secretary of State for the Colonies, requesting to be supplied with certain particulars respecting the fur-seal fishery of this Colony for the information of the Canadian Government, Ministers have the honour to submit herewith a Report which has been received from the Government Agent in charge of the seal and guano islands, affording the desired particulars.

(Signed) J. W. SAUER.

CAPE TOWN, *October 30, 1891.*

Report upon the present Condition of the Seal Fishery on the Coasts of the Cape of Good Hope.

The decline of the seal fishery in these waters is attributed by practical experts entirely to the destruction of the females in the breeding season, and but for the fact that there are many places almost inaccessible, and others where landing is difficult, the seal in these waters would probably have been exterminated, as no protection or legislation of any kind has ever been considered necessary.

155 During the "springs," as they are technically called, at certain seasons of the year, the seals are destroyed with clubs by men landing upon the islands from boats.

The winter or shedding season commences in June and ends in August, during which period numbers of male seals are killed, but very few females, who do not appear to come out of the water at this season of the year.

The summer or breeding season, which extends from November to January, is, however, by far the most important as regards the number of seals destroyed, and of these the larger portion are females, either about to give birth or suckling their young. Of course, in the former case, all these seals are lost; in the latter, the greater number perish; and but for a happy provision of nature, whereby a female seal will suckle any young one, the destruction of the new-born seal would be complete.

As the Colonial Government up to the present have always contented themselves with letting out the islands upon short leases, with no restriction upon the lessees as to the killing of seal, &c., no official information or statistics of any kind can be furnished.

The life of a seal in the southern waters, if unmolested, is supposed to extend over a considerable period, and it arrives at maturity in about three years. The old male

seals, called "bulls" or "whigs," attain an enormous size, and fight desperately among themselves. The females generally produce two pups at a birth, and immediately afterwards take the male. The "cow" will suckle any of the young seals, whether her own or not, and this period of nursing continues more or less for about six months.

As regards their migrations, it is difficult to give an opinion, as seals are always to be found in these waters, although they do not take up upon the islands in any numbers except at the seasons I have mentioned; but I think it may be naturally assumed that their migrations, whatever they may be, are regulated solely by the food supply.

Unfortunately, as I have stated before, there are no printed documents or Reports of any kind referring to the subject, but I have availed myself of information kindly furnished by the best practical experts in the Colony, with whom I have been associated, who are unanimous in their opinion—first, that the seals are decreasing in these waters; and, secondly, that the sole cause of this decrease at the present time is to be found in the destruction of the females during the breeding season.

We have practically no pursuit of the animals in the water on these coasts.

At one period, most of the islands were inhabited by seals, but there are comparatively few at the present time upon those islands in the immediate vicinity of Cape Town, and this may be accounted for by many reasons, besides the most important which I have already mentioned. Seals are very timid, and the noise of a steamer will scare them away; in fact, passing to windward in a sailing vessel, within 2 or 3 miles of an island which they frequent, will generally disturb them. It requires considerable experience to approach them, and old sealers never attempt to do so on these coasts when an easterly wind is blowing.

Upon several islands, especially in the Ichaboe group, are to be found the remains of vast numbers of "seal," probably the effects of an epidemic disease at some distant period. In many places, the hair, which is practically indestructible, has been found mixed with earth to the depth of several feet, and this when sifted gives a fair percentage of ammonia and phosphate, probably the residue of the bodies and bones of the dead animals.

The average value of seal-skins in the rough state in the London market, taken in these latitudes, is about 25*s.*, but many fetch a much higher price. No attempt has been made in the Colony to dress the skins, and there has been no sale for them locally except for export.

The system of killing the seals is the same throughout all the colonial islands, namely, with "clubs," by men landing in boats.

The skins are salted upon the spot, folded up, tied, and sent to Cape Town by coasting craft, from whence they are shipped to Europe.

(Signed) C. H. JACKSON,
Government Agent in charge of the Seal and Guano Islands.

CAPE TOWN, *October 9, 1891.*

Reply to Circular received from the Government of the Falkland Islands.

GOVERNOR SIR R. GOLDSWORTHY TO LORD KNUTSFORD.

GOVERNMENT HOUSE, *Stanley, October 26, 1891.*

MY LORD: I have the honour, in reply to your despatch of the 31st July, inclosing a despatch from the Governor-General of Canada asking for information regarding the seal fisheries in these seas, to forward a précis of the replies to the questions asked, which I have been able to obtain here.

I regret that the information is not as full as might be desired, but, unfortunately, Captain Hansen, an old and experienced sealer, from whom I had hoped to obtain full particulars, was accidentally drowned before my letter, requesting his views on a matter on which he was looked upon as an authority, reached him.

I have been given to understand by those conversant with these matters—indeed, it is referred to in the accompanying précis—that foreign vessels destroy the seals in the close season, which exists here from the 1st October to the 1st April.

The foreign vessels alluded to are American sealers, and formed the sub-
156 ject of correspondence between Governor Kerr and Captain Musgrave, Senior Naval Officer on the South-East American Station.

I shall probably, when better informed on the whole question, be able to submit my views on the subject. At present I refrain from doing so.

I have, &c.

(Signed) ROGER TUCKFD. GOLDSWORTHY.

Précis of Replies to Circular of Inquiry emanating from the Department of Fisheries of the Dominion of Canada relating to the Fur-Seal Fishery of the Southern Hemisphere which have been received from Residents in the Falkland Islands.

Question 1. Whether the decline or destruction of the fishery is attributable to the slaughter of the seals while on shore at their breeding places, or to their pursuit at large on the circumjacent ocean.

Honourable J. J. Felton.—The main cause is due to the reckless and indiscriminate slaughter of the seals during their breeding season; the death of the mothers, leaving the young to perish, and the numbers who are driven from their resorts bring forth their young in the water, which naturally perish. It has not been the practice to shoot the seals in the water. If so shot, they sink.

J. J. Goodhart sends cutting from the "Field," which he thinks fully answers the first three questions.

E. Nilsson.—The decline is to be attributed to the stocking of the land and people taking up their abode in the neighbourhood of the rookeries.

H. H. Waldron.—The decline in the Southern Hemisphere, including the Falklands, is to be attributed to the indiscriminate slaughter of the females during the breeding season, whereby the young perish. Pursuit in the high seas is not carried on to any extent.

Question 2. In what manner the fur-seal fishery has been, or is, conducted in each particular locality.

J. J. Felton.—Formerly, by means of whale-boats; later on, by cutters and schooners. They would be fitted out for the "pupping" and the "shedding" seasons; as many men would be taken as possible, armed with clubs, spears, and guns, and, landing at the breeding places, they would line the beach and endeavour to turn the seals from taking to the water. If successful in this, the seals fell an easy prey. Has repeatedly heard it said that so many were killed that numbers had become useless before they could be skinned. Now that the seals have taken to outlying rocks and cliffs, the work is less profitable and more dangerous.

J. J. Goodhart.—See answer to Question 1.

E. Nilsson.—They have been usually captured by shooting or clubbing.

Henry Waldron.—By men landed from schooners, who remain on the rookeries until calm weather permits them to be taken off.

Question 3. Whether any, and, if any, what measures have been taken by various Governments towards the protection of the fur-seal fisheries in their territories, or in places within their jurisdiction; and, further, if any such measures are known to have proved successful in preserving or rehabilitating the fisheries.

J. J. Felton.—In the Falklands, since the close season was enacted, there has been an increase of seals; but foreign schooners occasionally break the law.

J. J. Goodhart.—See answer to Question 1.

E. Nilsson.—Does not see any improvement since the Law enacting a close season was passed.

H. Waldron.—To the same effect as J. J. Felton.

Question 4. Generally, any particulars as to the life-history of the animal, its migration, season of bringing forth its young, and habits of the seals while engaged in suckling and rearing the young.

J. J. Felton.—Does not think the seal migratory. The breeding season is about midsummer, when both male and female make for a suitable place.

The "shedding" season is in the fall of the year, when they frequent rocks, and the young, which before were valueless, become marketable.

J. J. Goodhart.—Has not studied the subject sufficiently to be able to give particulars.

E. Nilsson.—The seal generally is a timid animal, and recedes from advancing civilization, and migrates to any place where it can remain undisturbed.

H. Waldron.—Owing to keen pursuit, the seals prefer caves and ledges of rocks under high cliffs to form breeding rookeries. The fur-seal hauls up to breed in January, the young leaving in May for other rookeries with both "whigs" and "clapmatches."* There is no regular migration, but it is probable that, when hard pressed, they leave the South Shetlands and mainland for the Falklands. "They are peculiar in liking some places for several years, and then at once going away and not hauling up there again, apparently without cause, in some instances where but few were killed and in others quite unmolested."

157 When sealers leave carcases on the rocks, seals desert the place.

Seals will not increase in the Southern Hemisphere until the Chilean and Argentine Governments have a close time and see it enforced.

(Initialled) V. S. S.

OCTOBER 28, 1891.

**Note.*—"Whigs," male seals; "clapmatches," female seals.

Reply to Circular received from the Government of New South Wales.

GOVERNOR LORD JERSEY TO LORD KNUTSFORD.

GOVERNMENT HOUSE, *Sydney, October 30, 1891.*

MY LORD: I have the honour, in reply to your despatch of the 30th July last, to state that I can obtain no information concerning the fur-seal fishery, as the fur-seal is not found on the coast of New South Wales.

I have, &c. (Signed) JERSEY.

Reply to Circular received from the Government of Victoria.

GOVERNOR LORD HOPETOUN TO LORD KNUTSFORD.

GOVERNMENT HOUSE, *Melbourne, October 27, 1891.*

MY LORD: I have the honour to acknowledge the receipt of your Lordship's despatch of the 30th July ultimo, requesting information on certain points connected with the fur-seal fishery in this Colony, and to transmit a copy of a letter, dated the 20th instant, from Sir Frederick McCoy, Director of the National Museum, which embraces all the available information on the subject.

I have, &c. (Signed) HOPETOUN.

SIR F. M'COY TO MR. MUNRO.

NATIONAL MUSEUM, *Melbourne, October 20, 1891.*

SIR: In reply to your letter of this date, I have the honour to report as follows:

1. The seal fishery of Australia was never so extensive as that of the North Pacific, and for more than thirty years the trade in Australian fur-seal skins has entirely ceased, although of some extent in Sydney a little before that time.

2. In Victoria the only fur-seal is the eared seal (*Euotaria cinerea*), the size, shape, and habits of which very nearly recall those of the North Pacific. The decline or destruction of the fishery is certainly attributable to the indiscriminate slaughter of the seals on the few islands off the south coast, especially in Western Port, where the old males and gravid females resorted in the summer to bring forth and tend the young. At present a few islands only are frequented by these seals, now in the breeding season, and the number of individuals is too small to furnish any trade.

3. The fur-seal fishery was conducted simply by manning a boat suitable for landing on the islands, the landing usually taking place at night, and then the seals were killed indiscriminately by clubbing them on the nose with large sticks. The skins were chiefly exported from Sydney.

4. No measures effective for the protection of the fur-seal fisheries have been undertaken on any large scale by any of the Australian Colonies, but some years ago I recommended the Victorian Government to prohibit the killing of seals on the small islands which they frequent near Phillip Island, and although the number has somewhat increased in consequence, it is far too small to furnish a trade.

5. The Australian fur-seals were never fished for in the open ocean.

6. Generally, the life-history of the Victorian fur-seal exactly resembles that of the North Pacific, following shoals of fish in the open ocean, but coming on the islands to breed in the latter part of the summer.

I have, &c.

(Signed) FREDERICK MCCOY,
Director of Museum.

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158 *Reply to Circular received from the Government of Tasmania.*

MR. SEAL TO THE CHIEF SECRETARY, HOBART.

HOBART, *November 30, 1891.*

SIR: I have the honour to report, for the information of the Canadian Government, the following, in reply to the queries laid down in their Circular letter of the 9th July, 1891:

Query 1. Sealing in Tasmania and her dependencies (almost solely confined to the islands in Bass Straits and the Macquarie Islands, situated to the south of New Zealand) has been carried on by the seals being killed on shore at their breeding places, and not by "pursuit at large on the circumjacent ocean."

Query 2. The seal fishery has been conducted by means of boats of 4 or 5 tons register fitted up amongst the islands in Bass Straits, the crew being equipped with clubs and rifles, the seals being shot upon the rocks when practicable, or followed upon the shore and clubbed. Occasionally, large vessels come to Bass Straits from other Colonies, but the same mode of killing is adopted. In the Macquarie Islands the same principles are adopted with larger vessels.

Query 3. No measures were taken by the Tasmanian Government towards the protection of the seal fisheries in their territories until the early part of the present year, when, at the request of the New Zealand Government, seal fishing was prohibited on the Macquarie Islands, and in October of the present year the Commissioners of Fisheries, fearing the total extinction of the seals in Tasmania, consequent upon their unrestricted slaughter, submitted a Regulation (copy attached, marked A) totally prohibiting the taking of seals in Tasmania and its dependencies for a period of three years.

Query 4. I inclose a newspaper copy (marked B) of a paper prepared and read by Mr. Alexander Morton, F. L. S., one of the Tasmanian Commissioners of Fisheries, at a late meeting of the Commission, which will, I think, fully answer the query, as well as give interesting particulars of the history of the seal fisheries, and habits of the seals, as far as Tasmania is concerned.

I have, &c.

(Signed) MATTHEW SEAL,
Chairman of the Commissioners of Fisheries.

GOVERNMENT NOTICE.

(A.)

The Governor in Council has been pleased, in accordance with the provisions of section 12 of "The Fisheries Act, 1889" (53 Vict., No. 11), to amend and approve of the following Regulation, the same having been made by the Commissioners of Fisheries, and published in accordance with section 13 of the said Act.

By his Excellency's command,

(For Chief Secretary, absent),
(Signed) ALFRED T. PILLINGER.

CHIEF SECRETARY'S OFFICE, *October 26, 1891.*

REGULATION.

1. The taking of seals, whether known by the name of seals or any other local name, in Tasmania and its dependencies, is hereby prohibited for a period of three years from the 20th day of July, 1891; and any person committing any breach of this Regulation shall be liable to a penalty not exceeding 5*l*.

NEWSPAPER EXTRACT.

(B.)

Mr. Morton then said that Mr. A. W. Scott, M. A., of New South Wales, was for many years prior to his death a trustee of the Australian Museum, and, acting under instructions from the New South Wales Government, published a most comprehensive work on the classification and habits of the seals found frequenting the Australasian shores, including the Macquarie Island. Three species of seals are found in these waters: the grey Australian fur-seal (*Arctocephalus cinereus*), the sea-leopard (*Stenorrhynchus leptonyx*), and the sea-elephant (*Morunga elephantina*). The latter is only found on Macquarie Island, although it is supposed at one time to have been met with in the islands in Bass Straits. Mr. Scott, in his work, divides the genus *Arctocephalus* into two main divisions—the northern fur-seal of commerce, and the southern fur-seal of commerce—(*Arctocephalus ursinus* and *Arctocephalus Falklandicus*). If, as has been stated by Mr. Scott, that the fur-seal found on our coast is similar, if not identical, with the fur-seal of Alaska, the proposed Regulations recommended by this Board are absolutely necessary for their preservation.

159 At the Fisheries Exhibition, held at London in the year 1883, considerable interest was taken in the collection of seals sent by the trustees of the Australian Museum. The skull of one of the seals sent to London was compared with the

one at the Paris Museum, and found to be identical. It was the first time that the southern fur-seal (*Arctocephalus cinereus*) had been seen in England. Representations were made to the New South Wales Government some few years back that this seal was rapidly becoming extinct. The Government issued an order protecting them on the islands and the mainland of New South Wales, the result being that they are now on the increase, and a number may be seen inhabiting the Seal Rocks a little to the north of Port Stephens.

In New South Wales the sealing trade was in full swing from 1810 to 1820, the firms engaged being Sydney firms, viz., Messrs. Cable, Lord, Underwood; Riley, Jones, and Birnie; Hook and Campbell. These firms had crafts manned by crews of from twenty to twenty-eight men to each vessel, and were usually fitted out for a twelve months' cruize.

Owing to the want of proper restrictions, the indiscriminate slaughter was terrible. It is recorded that in the years 1814–15, 400,000 skins from one island, the Antipodes Island, or, as it is sometimes called, Pennatipod, were taken. These skins being obtained in such a hasty manner were but imperfectly cured, and a writer states that the ship "Pegasus" took home 100,000 of these in bulk, and on her arrival in London the skins, having heated during the voyage, had to be dug out of the hold, and were sold for manure.

As early as 1801–2 Pérou says he found British seamen in Bass Straits killing all that came in their way. In the years 1803 and 1804 upwards of 36,000 skins were sent from the islands in Bass Straits, the slaughter being made without regard to sex.

At the present time in Macquarie Island are only to be found the sea-elephant (*Morunga elephantina*), yet when Macquarie Island was discovered by a sealer in 1811, the sealing master who discovered it procured a cargo of 80,000 skins, and another sealing party 100,000 skins, in one year.

With such a reckless killing, it is no wonder that the seals have become scarce round our shores, and unless steps are immediately taken, it will only be a question of time when their extermination will be completed.

Along the shores of New Zealand, as well as the southern shores of Australia, large numbers of seals were found. In New Zealand a vessel from Boston, called the "General Gates," landed a party of six men near the south-west cape of the Middle Island on the 10th August, 1821. In six weeks the party got 3,563 skins. For about twenty years enormous numbers were captured without any respect to age or sex, and in the year 1839 only a straggling seal was occasionally seen along the shores of New Zealand.

The American fur-seal had a narrow escape of sharing the fate of its southern kindred. In a paper dealing with this subject, a writer gives the following account:

"Early in this century the seals were almost exterminated in many of the islands in the North Pacific, and were there as ruthlessly slaughtered as they were in the Bass Straits and the New Zealand coast. The extermination was, as it were, commenced, had not Russia first and the United States afterwards leased the exclusive right of killing seals on the Pribyloff Islands—a famous sealing place—to a single Company, by which means the seals were saved, as the Company had an interest in keeping up the supply of furs."

This single experiment, the writer states, has proved conclusively that fur-seals can be farmed as easily as sheep, and that sealing should not be thrown open without restrictions. Seals are a property the State should jealously guard. On the two Pribyloff Islands it is computed that 500,000 seals resort annually. These islands, from the value of the fur-seal, were discovered in the year 1786, when the slaughter commenced, and was prosecuted without [?] until the year 1839, when the number had been so reduced that the business threatened to be entirely destroyed within a few years. The destruction was then stopped until 1845, when it was gradually resumed, though, instead of the indiscriminate slaughter which had before been permitted, only the young males (2 years old) were allowed to be killed. The rookeries continued to increase in size until 1857.

The Company who leased the right of sealing in these islands were restricted about the year 1860 to 50,000 seal-skins annually. From 1821 to 1839, 758,502 fur-seals were killed, and 372,894 from 1845 to 1862. From another authority, Mr. Hittell, I find that when the United States Government took possession of the islands in 1867 several American firms took possession, and the wholesale slaughter of seals began afresh. In 1868 not less than 200,000 seals were killed, and for 1869 it is said the number was not far below 300,000. The United States Government, fearing their total extinction, leased the sole right of seal-fishing on these islands to one firm, restricting the allowed number to 100,000. From what he had been able to lay before the Fisheries Board, no time should be lost in at once taking steps to protect the seal fisheries in Bass Straits. Wherever proper restriction has been introduced a most valuable industry has been started in connection with the seal industry, and, instead of the three years, as has been proposed by this Board, he strongly recommended five years for the close season, and if at that time the seals have increased

the Government might be recommended to lease the islands, allowing only a certain number to be taken annually, and on no account to allow the females to be killed.

In New Zealand, from the year 1855, the statistics of the export of seal-skins show: In 1855, from Wellington, 580 skins were exported; in 1857, 376. From then until 1868 there is no record. Then, in 1868, 675; 1869, 14; 1870, 269; 1871, 755; 1872, 2,012; 1873, 1,602; 1874, 1,061; 1875, 2,767; 1876, 3,417; 1877, 1,503; 1878, 820; 1879, 2,484; 1880, 2,648; 1881, 1,259; 1882, 353; 1883, *nil;* 1884, 374.

Professor J. H. Middleton states that the annual value of the fur-seal fisheries of the world is about 185,000*l.* The male seal does not attain his full size till he is about 6 years old, and the female when she is about 4. There is, says Mr. J. Clarke, in a paper printed in the "Contemporary Review," a remarkable disparity of size and build between them. In a species where the male would be 7 feet or 8 feet in length, and weigh 500 lbs. or 700 lbs., the female would not be more than 4 feet long, and weigh from 80 lbs. to 100 lbs. The males, when aged, are whitish grey, and between 7 feet to 8 feet in length; when adult, brown-grey to black-grey, and about 6 feet in length: young, grey, upper portions soon assume darker colours; pups, black. The females when adult are ash-grey to silver-grey, at times golden-buff, frequently spotted: from 3 ft. 6 in. to 4 ft. 6 in. in length, even more when aged; pups, black. The under-fur of both sexes is rich reddish, diversified by deeper or lighter shades, and variable in length and abundance, the whole being influenced by health, sex, and condition.

He thought the Government should step in now, as the sealing industry might prove a valuable source of revenue to the Colony in the future.

Viscount Kawasé to the Marquis of Salisbury.—(*Received December 15.*)

LEGATION OF JAPAN, *London, December 14, 1891.*

M. LE MARQUIS: I have the honour to inform your Excellency that, at the request of Sir George Baden-Powell, one of Her Majesty's Commissioners on the seal fisheries, I obtained from my Government a rapidly prepared Memorandum as to such fisheries in Japan. I have the pleasure to hand your Excellency herewith a translation of this Memorandum, which may be of interest to the above-named Commissioner.

I may possibly receive a further more detailed Report on the same subject, in which case I will forward a translation of it to your Excellency.

I have, &c.

(Signed) KAWASÉ.

MEMORANDUM ON THE SEAL FISHERIES IN JAPAN.

[Translation.]

[N. B.—In this Memorandum "seal" does not always mean "seals proper," but includes sometimes all kinds of sea animals. Word "county" is not always applied to subdivision of Prefecture ("ken"), but sometimes it is meant for the division ("kuni") of the old system.]

Seals are considered among the most important products of Hokkaido.

They are found in every part of the Kurile group, from Shimshu in the north to Shikotan and Kunashir in the south; Urup and Itrup being their favourite haunts.

Although the history of the origin of seal-hunting cannot be accurately traced, it appears that about 170 years ago a few natives of Akishi, in Kushiro, emigrated to Shibetoro, in Itrup, and occupied themselves in hunting seals, eagles, bears, &c., which they brought back to Akishi every year when the sea was free from ice (after April and May), in order to barter them for rice and other necessaries of life; while the natives of Akishi visited this new Colony for the exchange of these commodities.

In the course of time the emigrants increased by degrees, settling down in such places as Toshiruri, Rianshi, in that island, and became hunters of seals and other sea animals in the neighbourhood.

In 1765 (about 120 years ago) seal fishery became very prosperous, and the natives of Rashua, as well as the old islanders of Itrup, carried on their hunting business in the Isles of Horomoshir, Makaruru, Shimsir, Urup, &c.

In the same year the Russians first made their appearance in the Islands of Rashua and Musir. In the following year they came to Itrup, and having obtained information about the localities from the natives, they went to the Island of Urup, where they stayed for three years. During their sojourn there they treated the natives in a very cruel manner, and provoked their great anger. But the natives being powerless to resist their oppressors, their Chief at last fled from the island.

In the summer of 1770, while the natives of Itrup, with their Chief, were hunting in the Island of Urup, the Russians came there and ordered them to ship all their catch to Russia, and, on their refusal, their two Chiefs were killed by the Russians.

In the same year, while the Chief of Rashua, together with a host of natives, were hunting in Urup, the Russians again made their appearance, and seized all their catch at the point of their guns. At last the anger of the natives was aroused to such a pitch by the Russian outrages that they resolved to avenge themselves, and in 1771 they gathered in great numbers, each carrying some weapon, and attacked the Russians in Urup, killing eight of them; and thence from the western coast they passed over the mountains to Wanino, where they attacked some Russians who were living in caves. Only seven of the Russians escaped slaughter. From that place the natives sailed to Makarusi, where they also slaughtered seventeen Russians.

At that time the chief instruments used by the natives for killing seals were the bow and harpoon, while the Russians used guns.

After this defeat the Russians did not come for a long time.

During the years of the Anyei period (1772–80) the natives of Urup were constantly cruizing and hunting round Urup and its neighbouring islands, and this prevented the Russians from catching seals so freely, although now and then they made their appearance. But towards the end of the Anyei period they came in a great number, and made a good catch.

In the years of Tenmei (1781–88), as the natives ceased to hunt for seals, all the islands of the Kuriles except Itrup were monopolized by the Russians.

161 In 1795 Government caused some thirty men and women to emigrate to Itrup, and there were good catches made. Nets were then first used.

In 1800 Takataya Kahé, a native of Awaji, emigrated to Itrup, and there employing the natives started a settlement for seal-hunting and other fisheries.

In the years of Kiowa (1801–3), Suwara Koyemon and Daté Rinyemon, of Fukuyama, Matsumayé having taken over the fishing establishment and plants from Takataya Kahé, and building new fishing depôts in several places, carried on the fishing of sea animals.

At that time the seal-skins were bartered with the natives as follows, viz.:

The best = 20 sacks of rice (each sack containing 8 shō*) per skin; the middling = about 10 sacks, and the common skins were severally valued according to their qualities; and the natives were paid according to the skins they produced at the time of counting their catch. The skins thus bought were called "karimono," and were annually sent to the Prince of Matsumayé, whose Government paid for them at the fixed rate of 0.56 sen for 1 shō of rice, which was the standard of barter; and there were strict penal regulations against smugglers.

In the years of Keiō (1865–67) the Russian Government sent Alaskan natives to Urup, and the Russian fishing settlement became more and more prosperous.

Seal-skins were a special product of Japan, and from olden times they were transported to Nagasaki, where they were sold to the Chinese.

In modern times seals and other sea animals, once famous products of Japan, being mostly caught by the Russian hands, are now looked on as Russian products, and are imported into Peking direct from Russia.

In 1869, at the time when "Kaitakushi" (Colonization Department) was newly established, its branch office was set up in the Island of Itrup, and some officials were sent in order to check foreign poachers, and superintend the fishing industry. As to the mode of buying skins, the old regulations were adopted, but on account of the old rate of exchange at 1 shō of rice at 0.56 sen being out of date, the fisheries incurred much loss. In April 1873 the official rate was raised to 1.68 sen per 1 shō.

In June of the same year for the first time a special office was established in Itrup, whose duty it was to suppress seal-poaching, and Commissioners were sent there. In August instructions were given to these Commissioners to keep strict vigilance as to poaching-vessels of foreign countries and the unlawful sale of seals in the vicinity of the island.

As seals mostly congregated in the seas neighbouring to Itrup, the ingress of foreign vessels to those waters, not only Russian, but also British, American, Dutch, and other countries, increased year after year, and oftentimes these vessels used to anchor in the neighbouring harbours.

In such cases the Commissioners informed them of the national prohibition, and requested them to leave, but under such pretexts as ship's repairs, or want of water and fuel, they did not obey the remonstrances, and when there was a shipwreck, which occurred very often, it gave a great deal of trouble and annoyance to the Commissioners, who had to look after the wrecked crews, and to have them escorted to the port of Hakodaté.

* 1 shō is equal to 0.1985 peck.

For instance, when the "Isalie" [?], an American vessel, stranded on a reef near Itrup, the natives rendered as much assistance as they possibly could to the unfortunate vessel, but all efforts having proved fruitless, this vessel was wrecked at last, and damages were claimed on the ground that it was lost on account of sufficient assistance not having been rendered. Such unlawful and unreasonable action on the part of foreign vessels was of frequent occurrence.

All these foreign poaching-vessels being of a much more improved type than the ordinary Japanese fishing-boats, it was very difficult to watch their movements in the high seas, and, as about seven-tenths of the island was uninhabited, fishing establishments in the whole island being very few, it was no wonder that watch could not be effectively kept by a few Commissioners with only two or three fishing-boats to cruize with.

Under these circumstances, in consultation with the Navy Department, two ships of war were commissioned, and one of these two was stationed at the port of Nemuro, one replacing the other in alternate years, and they were ordered to cruize round the Kurile group in order to watch the poachers.

Besides, the "Kioriomaru," of Kaitakushi, was sent to Itrup every year from May to October (season for seal-hunting) to cruize and watch in the vicinity of the island.

In March 1874 Mr. Alcott Brookes, His Imperial Majesty's Consul in San Francisco, reported to the Foreign Office that six boats were being prepared in Canada to start for seal-hunting in the islands of Hokkaido, and soon afterwards he also reported that some sealing-vessels had left the port of San Francisco.

In May of the same year, upon consultation with the Foreign Office, Regulations, consisting of three clauses, controlling the fisheries in the waters near the islands of Hokkaido, were issued, viz.:

"1. Along the coast-lines the limit of the territorial right of Japan is fixed at 3 ri (1 ri=2.4403 miles) from the shore; in case of bays, the line of limit shall be measured from a straight line drawn between the two capes at the extreme ends of the bay; but this applies only to cases where the space between the capes does not exceed 3 ri.

"If any foreigners be found fishing within the above-mentioned limit they shall be arrested in as peaceful a manner as possible, and sent to Hakodaté, accompanied by guards, and delivered to the Consul of the country of their nationality to be dealt with in a proper manner.

"2. If foreigners do not submit themselves to the authorities, or any violent resistance be offered by them at the time of such arrest, necessary force may be employed to carry out the foregoing Regulations.

"3. Inasmuch as there may be some foreign vessels arriving in harbour in
162 consequence of stress of weather or want of water or fuel, a careful scrutiny shall be made as to the true circumstances, and, upon ascertaining their good faith, they shall be treated in accordance with the 'Regulations for Assistance to Foreign Vessels in Distress.' And if His Imperial Majesty's subjects be found poaching, their fishing apparatus and catches shall be confiscated according to the existing Regulations, and they shall be delivered to the branch office at Nemuro, there to be properly dealt with," &c.

The "Kioriomaru" and "Genbumaru," belonging to Kaitakushi, having on board interpreters and Seal Fishery Superintending Commissioners, were ordered to cruize in the vicinity of Itrup to watch any foreign poaching-vessels.

In the same month there was a *pourparler* with M. Benlin [?], master of a Danish poaching-vessel the "Mattée" [?].

In June, when the "Kioriomaru" was cruizing back, she met with six American vessels, and there were various interviews respecting them.

In July His Imperial Majesty's ships "Hoshio" and "Osaka" were sent over, and the "Kioriomaru" again sailed to the islands.

In August an American ship "Snowdrop" was found at Tankam Bay, and some investigation was made. Five foreign vessels at Ounebetsu Bay were also subjected to investigation. But these are only a few vessels out of many which were not brought under notice.

To illustrate the cunning of foreign poachers, they, all of them, would enter and anchor in harbours, pretending that they had come under stress of weather or for want of water or fuel, going out of one port in the morning and entering another in the evening, their movements being so alert that it was a matter of no wonder that a single watch-ship was unable to keep them under observation. But, on the whole, the Island of Itrup was found unfavourable for the purpose of promoting our fisheries and of watching for foreign poachers. The climate is very inclement; during summer months there is dense fog, and when the autumn approaches the fog begins to lift, but only to be succeeded by a violent northwesterly gale, causing a heavy sea. And there is no good harbour. Thus the navigation in these waters is very difficult.

Consequently, in the same month, the stationing of the "Kioriomaru" at that island was discontinued, and she was ordered to cruize between Nemuro and Hakodaté twice every month; the seal-hunting affairs were left to the control of the branch office at Nemuro; and three branches of the superintending office were established in the islands at Ounebetsu, Nannoho, Toshimori, where Commissioners were sent respectively with three boats, four boatmen for each boat.

As to the mode of hunting, the natives used to shoot seals with bows and arrows while resting upon reefs or rocks. In winter, when the sea is frozen over, they simply chased them over the ice and killed them with clubs, or they used to go in a boat made of skins of sea-horse and whale-bones, wearing a kind of waterproof made of the bladders of sea elephants or sea-horse, and with a head covering made of fox or wolf-skins, thus deceiving seals when approaching them. In this clever manner they used to catch a great many. The boat itself was very simple, but so easy of motion that its progress was very fast, even in a heavy sea-way, and it was quite safe from capsizing.

The weapons which the natives had in these boats were a long harpoon, a club, and a gaff. When they approached a victim they threw the harpoon, and having made a good hit, the top, or barbed end, which is tied to a long string, separated itself from the pole and remained in the flesh; thus, even if the animal was not killed at one *coup*, its whereabouts could always be known, as the pole to which the other end of the string is tied acted as a float, and the seal was dragged out and clubbed to death, and then gaffed into the boat.

This mode was considered to be the best way of catching seals, but in modern times it is superseded by the use of guns.

But seals are very averse to the sound of firing, and the use of the gun is sure to drive them away from the vicinity to some far distant places, and the flocks are thinned year by year. The natives, knowing this by long experience, abstained from using guns, but at the present time, as all foreigners poach with guns, our mode of hunting was also obliged to be similarly changed.

In April 1875, at Beretarubetsu, near Shibetoro, Itrup, a Russian boat was found anchored, and its master, with three Russians and three Japanese, were seen constructing a hut on the coast. They were consequently warned off by the Commissioners.

Again, an information was given to the Commissioners that at Moroco, in the same county, the Americans Ramion Jean (?) and three others built houses, and were carrying on poaching business since October of the preceding year. They were consequently arrested and sent to Hokadaté, and delivered to the hands of the United States Consul.

In June of the same year His Imperial Majesty's ship "Asama" entered into the port of Nemuro as a guard-ship, and cruized about the Kurile group and along the coast of Kitami.

In September the "Asama" returned, and the "Kioriomaru" and "Genbumaru" set out for a cruize around Itrup.

In December a schooner, built at Muroran for seal-hunting, was completed and sent to the port of Nemuro. This schooner was named the "Chishimamaru."

The Regulations for controlling seal fisheries which were issued some years ago, after consultation with the Foreign Office, had to be amended, owing to the territorial boundaries being definitely marked out, consequent upon the exchange of the Kuriles (with Russia) having been effected in September, 1874. Consequently, in April 1876, new regulations for controlling the fisheries in Hokkaido, consisting of three clauses, were issued.

The first clause prohibited any foreign vessels from fishing with any line, net, guns, &c., any fish or sea animal within the range of a gun-shot from the coast of Hokkaido or of other islands belonging to the Empire of Japan.

The second clause decreed that the officials appointed under the Regulations for controlling fisheries in the territorial waters of Japan shall order to clear out
163 of the boundary any foreign vessel which is suspected of infringing upon the prohibition mentioned in the first clause, or if such vessel is thought to have already infringed the prohibition, that they shall board the vessel and inspect her cargo.

The third clause decreed that when there is any foreign vessel which has actually infringed the prohibition in the first clause, or refused to clear out of the boundary or to submit to the inspection of cargo mentioned in the second clause, the officials under the Regulations for controlling fisheries in the territorial waters of Japan shall take such vessel to the nearest open port, shall deliver it to the Consul of the country to which it belongs, and upon its being clearly proved to be guilty of the offence after due inquiries, shall demand from the Consul the infliction of due punishment.

In the same month, in the Bay of Tsuntan, in the Island of Shikotan, in the county of Hanasaki, an office building and a store-house were built.

The island of Shikotan is 18 ri in circumference, and has a good natural harbour. In old times many natives used to immigrate, and the people of the mainland also used to come for fishing purposes; but, owing to the difficulty of communication, almost all of them crossed over to the neighbourhood of Nemuro; and at the present time it is rare to find any inhabitants in the island. Thus the island became a good shelter for foreign poachers, and many vessels made the harbour their resting-place whence to sail, and when the time and wind were favourable for their unlawful acts. Accordingly, some Superintending Commissioners were sent over to guard the neighbourhood.

In June an office-house and a store-house were built in the Bay of Tankamu, in the county of Furubetsu, Itrup.

In July His Imperial Majesty's ship "Moshun" cruized about the Island of Itrup in search of poachers.

In August, in consideration of the diligence and hardships of the superintending officials of Itrup in discharge of their duty, day and night through all seasons, a sub-regulation was made rewarding them by special grants of money, classified according to the merit of each individual.

In May 1878, in consequence of much inconvenience having been experienced by the officials in discharge of their duty on account of the differences of language on such occasions as when interviewing foreign vessels or making inquiry as to foreign poachers, the following instructions were given to the superintending officials in Shikotan, and were posted in conspicuous places, written in foreign languages, viz:

"1. This island is the Island of Shikotan, county of Hanasaki, Nemuro, Hokkaido, belonging to the Empire of Japan.

"2. You are requested to report in detail, in writing, the nationality of vessel, its name and that of the captain, the number of crew, and the reason of coming. If for temporary anchorage, in want of water or fuel, or in consequence of wind or tide, you are requested to leave as soon as your wants are satisfied or the weather becomes favourable.

"Hunting of sea animals is prohibited in the neighbouring seas."

The skins of the seals prepared according to the mode of the locality were very thin, and the process of tanning was imperfect. In June of the same year a skilled tanner of Tôkiô was consulted, and it was advised that the skins shall be left as thick as possible, and to prevent the change of fur-colour, that they should be painted with coal-water in such a manner as to allow the colour of the leather to be seen, and when dry to be painted again twice in the same way. In summer, there being fear of moth, they were to be painted with camphor-water after being painted with coal-water.

Heretofore, as there was no restriction as to the mode of seal-hunting, and fears were entertained of the extermination of the species by wanton hunting, Hunting Regulations were issued in October with a view to promote the increase of seals, as well as to check poaching; and four superintending officials and thirty-six hunters were added.

The Regulations run as follows:

"Article 1. In view of protecting seal-hunting and checking foreign poachers, a vessel of foreign type shall be commissoned to cruize in the neighbourhood of Itrup. 'Chishimamaru' shall be commissoned for this purpose for the time being.

"Art. 2. The mode of killing shall mainly be by clubbing, and the use of guns shall be avoided as much as possible.

"Art. 3. Young seals shall be spared as much as possible.

"Art. 4. The number of seals to be caught within 1 ri of coast-line shall not exceed forty-five per annum.

"Art. 5. Between the months of May and November the killing of seals within 1 ri of coast-line is prohibited.

"Art. 6. Any person who catches wounded or crippled seals washed ashore, even within the prohibition limit, shall be paid in money or in kind according to the quality of the skin.

"Art. 7. To prevent the decrease of seals by careless chasing and wanton killing, special care shall always be taken, and the preventive method shall be established.

"Art. 8. The number of seals taken will be inspected, and their skins shall fix the proof of their ages.

"Art. 9. The covering and breeding seasons, &c., shall be carefully ascertained by practical observations.

"Art. 10. Practical observations and investigations shall be made as to the truth of the seals losing or changing the colour of their fur according to different seasons.

"Art. 11. An actual investigation shall be made as to how many seals can be caught annually if the use of guns be discontinued, and clubs and bows and arrows be adopted instead.

"Art. 12. While out hunting, if anything occurs likely to form an object for future investigation, a minute record shall be kept.

"Art. 13. While the present Regulations shall be strictly obeyed by all those
164 who are responsible for seal-hunting, they can address themselves to the authorities to effect required amendments in case practical inconveniences shall have been experienced."

Year by year the use of guns for killing seals having gradually increased, the frightened seals escaped into distant places, and began to flock about the coast-lines and near seas of the Island of Kunashir, where human beings were most seldom found. Consequently, hunting quarters were established in the island, hunting apparatuses newly supplied, superintending officers were sent and hunters engaged, and the hunting business was started afresh. But here, again, people came and fixed their hunting quarters, and the arrival and departure of boats became frequent. The decrease of seals naturally followed, and foreign poachers also disappeared.

In June 1879 a hunting depôt was built at Iriribush, in the county of Furubetsu, Itrup.

In May 1880 His Imperial Majesty's Consul at San Francisco reported that a schooner had left that port for the purpose of seal-hunting in the neighbouring seas of Itrup.

On observing the general aspect at this time, and comparing it with former years, the number of seals caught was found to be on the decrease, and it is evident as a matter of course that the more they are killed the fewer will be bred; while, year after year, increased influx of foreign poachers competed in the fishing, there being no means of checking them outside the line of territorial limit fixed by international law. Besides, as the foreigners did not in the least care about the decrease of breeding or the extermination of the species, they freely used their guns in hunting, and, as the result, they killed the greatest number. Thus we were also obliged to throw aside the old instruments, such as clubs, bows and arrows, and gaffs, and to adopt the gun, as it would be most foolish to keep to the old system while letting others make the greatest gain. Thus the use of guns is the main cause of the present decrease.

In February 1882, after Kaitakushi was abolished, seal fishery affairs were transferred to the Agricultural and Commercial Department, together with the superintending officers, fishing implements, and everything connected with the fisheries. From this time the fishing was carried on by the authority of the above-mentioned Department until 1887. And, in 1889, the "Dainippon Suisan Kaisha" (the Marine Produce Company of the Empire of Japan) was given the exclusive permission of hunting seals and sea-otters; and the several Regulations in force at the present time are as follows:

"DECREE NO. 16.

"MAY 23, 17TH YEAR OF MEIJI (1884).

"In future, the hunting and catching of seals and sea-otters in Hokkaido is prohibited; the offenders will be punished by 373rd clause of the Penal Code, and their catches will be confiscated; but those who are in possession of the special permission of the Minister of Agriculture and Commerce shall be exempted."

"IMPERIAL DECREE NO. 80.

"DECEMBER 16, 19TH YEAR OF MEIJI (1886).

"REGULATIONS CONTROLLING THE HUNTING, THE IMPORTATION, AND THE SALE OF SEALS AND SEA-OTTERS AND THEIR RAW HIDES.

"Article 1. Any person who is in possession of the special permission of the Minister of Agriculture and Commerce, pursuant to the Decree No. 16 of the 17th year of Meiji (1884), shall be allowed to hunt and catch seals and sea-otters within such area and season as may be fixed by Hokkaido Chō, provided that the person shall always carry the special permit when he is engaged in hunting, and that wherever he may be, on land or on water, he shall at once produce and show the same to the superintending officials or police officers when they ask him to do so.

"Art. 2. When any person engaged in seal and sea-otter hunting arrives in Hokkaido, he shall report the name of his boat, its tonnage, and the names of crew, to the branch office named by the Hokkaido Chō, and shall always keep fixed to the mast, or other conspicuous part of the boat, a certain sign specially provided for such hunting-boats.

"Art. 3. Any person wishing to sell raw hides of seals or sea-otters shall first present and have them stamped (branding stamps can be used) by the proper officers at the branch office mentioned in Article 2. No hides without this official stamp shall be allowed to be sold.

"Art. 4. If any person who has imported into any port of the Empire, or anchored in any port having on board raw hides of seals or sea-otters, or had sold or is going to sell these hides in a market, be found out, the Customs authorities or the police

officers shall seize the articles, and shall at once prosecute the offender: provided that the raw hides of seals or sea-otters caught within the territories of Russia or the United States of America, with due permission of the respective Governments, can be imported into the Empire upon the owner or the captain of the ship producing the certificate given them by the proper authority of their Government or the guaranteeing certificate of the Russian or the United States Consuls residing in the Empire."

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165 *"Report regarding the Revision of the Details of Procedure to carry out the Regulations controlling the Seal and Sea-otter Hunting.*

"To his Excellency ENOMOTTO TAKEAKI,
"Minister of Agriculture and Commerce, &c.

"HOKKAIDO, CHŌ, *July 10, 21st year of Meiji (1888).*

"SIR: I have the honour to inform your Excellency that the details of procedure to carry out the Regulations controlling seal and sea-otter hunting per notification No. Kō. 15 of Hokkaido Chō (December) 19th of Meiji (1886) have been revised, as shown in the inclosed copy of Chōrei No. 35, dated 10th May of the current year.

"I have, &c.

(Signed) "NAGAYAMA TAKESHIRO,
"Director of Hokkaido Chō."

["Inclosure.]

"DETAILS OF PROCEDURE TO CARRY OUT THE REGULATIONS CONTROLLING THE SEAL AND SEA-OTTER HUNTING.

"Article 1. The open season for seal and sea-otter hunting shall be from the 15th April to the 31st October in each year.

"Art. 2. The area of hunting shall be all the islands situated eastward of Itrup, and southward of Shimshu, of the Kuriles, and it will be divided into three sections, and every year only one of these sections shall be opened for hunting.

"The first section includes seven islands, *i. e.*, Itrup, Chirihoi, Butettchelboa [?], Broughton, Raikoké, Mushir, and Chirinkotan.

"The second section includes six islands, *i. e.*, Shimshir, Shiritoi, Ushishir, Sletonepa [?], Rashua, and Matsua.

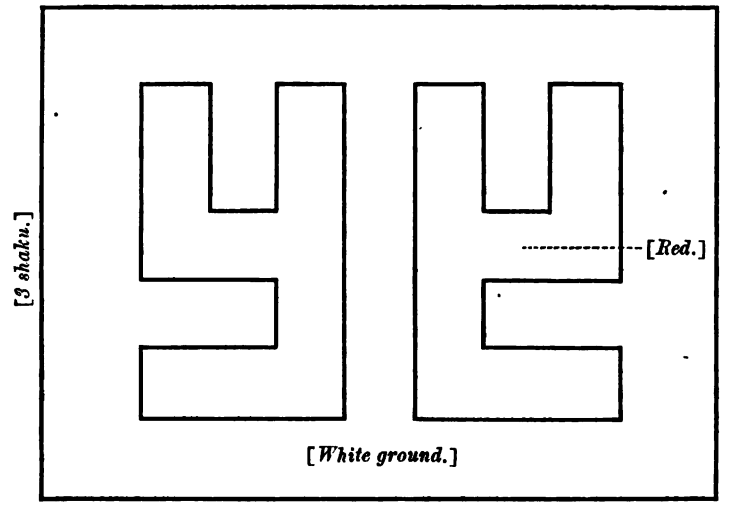
"The third section includes twelve islands, *i. e.*, Shannekotan, Yekkerma [?], Karreukotan, Ounekotan, Anos, Makarushi, Shurenwa [?], Paramushir, Holt, Cockscar, Araito, and Shimshu.

"Art. 3. When a boat is going out for hunting, her name, tonnage, and the names of the crew shall be reported for inspection to the branch office of seal and sea-otter hunting superintending authorities, either at Nemuro, in the county of Nemuro, or at Shikotan, in the county of Chishima.

"Art. 4. When the branch office of seal and sea-otter hunting superintending authorities find the report mentioned in Article 3 in due form on inspection, it will give to the boat a flag hereinafter shown.

"Art. 5. Any person who wishes to export and sell the raw hides of his catch shall produce them to the Shikotan branch of the seal and sea-otter hunting superintending authorities, and shall have them stamped."

THE FLAG.



166 *Number of Seals and Sea-otters caught.*

Year.	Number of Sea-otters.	Number of Seals.	Year.	Number of Sea-otters.	Number of Seals.
1873	288	.....	1883	3	.....
1874	78	.....	1884	53	.....
1875	250	.....	1885	31	.....
1876	285	.....	1886	99	.....
1877	343	.....	1887	.....	.....
1878	270	.....	1888	.....	.....
1879	211	.....	1889	53	33
1880	137	.....	1890	47	381
1881	77	.....	1891	.....	.....
1882	82	.....			

Memorandum respecting Japanese Seal Fisheries.

1.—WHETHER THE DECLINE OR DESTRUCTION OF THE FISHERY IS ATTRIBUTABLE TO THE SLAUGHTER OF THE SEALS WHILE ON SHORE AT THEIR BREEDING-PLACES, OR TO THEIR PURSUIT AT LARGE ON THE CIRCUMJACENT OCEAN.

1. The only known rookeries or hauling grounds of the fur-seal within Japanese dominions are the following:

Srednoi Rocks (off Ushishia).
Raikoké Island.
Mushia Rocks.

The first of these hauling grounds, all of which are situated in the Kuriles, is only some 100 yards long by 60 yards wide, and the others are not much larger; but at the time of their discovery in 1881 they must have harboured annually some 20,000 or 25,000 fur-seals; 5,000 were actually taken there by one vessel in the year mentioned. Since then they have gradually declined in productiveness, and it may be said that at the present time they yield catches of only a few scores in the place of thousands.

There can be no doubt that this result is exclusively due to the indiscriminate slaughter of the seals at their breeding place. No "rookery" could withstand for many years such wholesale destruction as these were exposed to in consequence of the successful venture of 1881. Nor is there any other way of accounting for their depletion, for it is known that the two or three foreign sealers which now find it worth their while to equip at Yokohama do not engage in pelagic sealing, but proceed to the more extensive haunts of their quarry beyond Japanese waters, such as Robben, Behring, and Copper Islands, where they hope to elude the vigilance of the Russian guard vessels.

Large numbers of seal from the Russian "rookeries" are scattered every winter over the ocean lying off the north-east coast of Japan, but they are unmolested by foreign or native sealing-vessels, and only the fringe of them is touched by native fishermen in their open boats along the Nambu and Yezo coast, where some 2,000 or 3,000 are taken annually.

2.—IN WHAT MANNER THE FUR-SEAL FISHERY HAS BEEN OR IS CONDUCTED IN EACH PARTICULAR LOCALITY.

2. The coast fishery by the Japanese in the immediate neighbourhood of Yezo and off the mainland north of Inabosaki has just been alluded to. It is carried on in native open boats by means of spearing or nets. The catch (2,000 or 3,000 skins a-year) is disposed of to Chinese merchants at Hakodaté.

Other pelagic sealing there is none in the ocean lying off Japan.

The few scattered seals still to be found about the exhausted breeding grounds of the Kuriles are occasionally taken by the schooners of the Japanese "Marine Products Company," but only two fitted out this year, and their catch was sixty seals between them.

Of British and other foreign sealers only three were equipped at Yokohama this year, but the sphere of their operations lies to the northward beyond Japanese jurisdiction. According to figures furnished by the British Consulate at Yokohama, between eleven and eighteen of these vessels left Yokohama annually for the seal fisheries in the years following the discovery of the Kurile breeding grounds, namely, between 1882 and 1885 inclusive. After 1885 their numbers gradually dwindled, owing to the depletion of the Japanese fishery and the greater risk and uncertainty attending a cruize to more northerly waters.

167 It is stated by the Japanese Agricultural Department that "the fur-seal appears to be reared on the rocky coasts, and, in consequence, they are generally caught while swimming at a distance not more than 1 nautical mile from the coast."

It may be that a few are so taken about the Kuriles, but the fishery—now almost extinct—of those islands was carried on, in the years of its prosperity, entirely by clubbing the animals on the beach.

3.—WHETHER ANY, AND, IF ANY, WHAT MEASURES HAVE BEEN TAKEN TOWARDS THE PROTECTION OF THE FUR-SEAL FISHERIES, AND, FURTHER, IF ANY SUCH MEASURES ARE KNOWN TO HAVE PROVED SUCCESSFUL IN PRESERVING OR REHABILITATING THE FISHERIES.

3. The measures tardily taken by the Japanese Government in 1884 to protect the Kurile rookeries have remained entirely inoperative. Elaborate Regulations were framed in that year and in 1886, establishing a close season between the 1st November and the 15th April, and dividing the Kuriles into three groups, in only one of which was fishing to be allowed in any one year, and then only on the issue of a licence by the authority constituted for the purpose.

There is no means of enforcing these Regulations, which, indeed, were not devised until after the ruin of the hauling grounds had been effected. A Japanese guardship was told off this year to watch over their observance, but she never left her station at Nemuro, and, except the Japanese "Marine Products Company," now rapidly approaching bankruptcy, no one dreams of applying for the regulation licence, or of limiting his operations to the group in which the fishery is legally permissible. But, as stated above, the Kuriles no longer attract the seal fishermen to any extent worth mentioning.

The Japanese Regulations in question have no bearing on pelagic sealing, which, as already stated, is not engaged in by Japanese or foreign sealing-vessels.

4.—GENERALLY, ANY PARTICULARS AS TO THE LIFE-HISTORY OF THE ANIMAL, ITS MIGRATION, SEASON OF BRINGING FORTH ITS YOUNG, AND HABITS OF THE SEALS WHILE ENGAGED IN SUCKLING AND REARING THE YOUNG.

4. The vast bulk of the seals now found in Japanese waters, and more especially in that portion of the ocean extending eastwards from the coast between Inabosaki and the eastern point of Yezo are from the Russian breeding grounds in the Behring Sea and in the Sea of Okhotsk.

They follow the fish southwards about the beginning of November, and remain scattered over a large expanse of ocean, where they are quite unmolested, throughout the winter and spring months. It is a matter of some surprise that no attempt is made to take them in the open sea, as is done on such a large scale in the case of the seals resorting to the breeding grounds of the eastern portion of Behring Sea. Possibly they scatter more in the Western Pacific, and are less easy to find.

After their sojourn in the south, the first to repair to the northern rookeries are the old bulls, arriving about the middle of June. They await the cows, which follow them towards the end of the same month. Yearlings and other non-breeding seals arrive at any time later. The young are brought forth in the beginning of July.

It is sometimes stated that the females are in the habit of leaving the rookeries to catch fish within 10 or 20 miles of the shore for the support of their young, but the experienced authority on whose remarks these notes are founded is not of this opinion. He has never found food inside the female fur-seal taken on the hauling grounds.

(Signed) M. DE BUNSEN,
Her Majesty's Secretary of Legation.

TÔKIÔ, *November 19, 1891.*

Mr. Wyndham to the Marquis of Salisbury.—(*Received November 21.*)

(No. 107. Commercial.) RIO DE JANEIRO, *October 27, 1891.*

MY LORD: With reference to your Lordship's Circular despatch No. 30 of the 10th August last, and to my despatch No. 114 of the 25th September, on the subject of the fur-seal fisheries of the Southern Hemisphere, I have the honour to transmit herewith to your Lordship copy of a despatch which I have received from Her Majesty's Consul at Rio Grande do Sul, in which he states that, having made inquires in both States of his Consular district, he finds that no expeditions are sent thence to the fisheries, and that nothing is known about the conditions under which the fisheries are carried out, or the habits of the seal itself.

I have, &c.

(Signed) HUGH WYNDHAM.

CONSUL HEARNE TO MR. WYNDHAM.

RIO GRANDE DO SUL, *October 14, 1891.*

SIR: With reference to your despatch of the 9th September last respecting certain information with regard to the fur-seal fisheries of the Southern Hemisphere,
168 I have the honour to inform you that I have made inquiries in both States in this Consular district, and find that no expeditions are sent hence to the fisheries, nor is anything known about the conditions under which fisheries are carried out, or the habits of the seal itself.

I have, &c.

(Signed) W. R. HEARNE.

Mr. Wyndham to the Marquis of Salisbury.—(*Received October 22.*)

(No. 114.) RIO DE JANEIRO, *September 25, 1891.*

MY LORD: With reference to your Lordship's despatch No. 30 of the 10th ultimo, desiring certain information respecting fur-seal life in the Southern Hemisphere, for the use of the Government of Canada, and to my despatch No. 109 of the 9th instant on the same subject, I have the honour to report to your Lordship that I have received a note from the Minister of Foreign Affairs, in reply to my request for the information desired, in which he states, on the authority of the Minister of Marine, that seal-fishing is unknown in Brazilian territorial waters, that no laws respecting the same exist in Brazil, and that hitherto no vessel engaged in this trade has touched at any Brazilian port.

I have, &c.

(Signed) HUGH WYNDHAM.

Mr. Pakenham to the Marquis of Salisbury.—(*Received January 18, 1892.*)

(No. 51.) BUENOS AYRES, *December 22, 1891.*

MY LORD: With reference to your Lordship's despatch No. 24 of the 10th August on the subject of seals and seal fishery on the Argentine coast, I now have the honour to inclose translation of the reply of the Minister of Foreign Affairs to my inquiry on the subject, whereof copy is likewise inclosed.

Apparently the taking of seals is at present prohibited by law, as also the working for profit of any natural product of the south coasts, though it is implied that before very long certain fishery privileges may be conferred in various quarters not as yet named.

I believe there is an extensive industry in the seal fishery off Maldonado, near Monte Video, and, in fact, I well remember, twenty-five years or so ago, that those concerned in the fishery gravely petitioned the Government that the lighthouse at Maldonado should be closed, as the light appeared to alarm the seals.

I have, &c.

(Signed) F. PAKENHAM.

MR. PAKENHAM TO SEÑOR COSTA.

BUENOS AYRES, *September 12, 1891.*

M. LE MINISTRE: I have the honour to place in your Excellency's hands a copy of a Circular issued by the Department of Fisheries of the Dominion of Canada, and which Lord Salisbury has directed me to lay before the Argentine Government, with the request that, if it is possible, they will kindly furnish the information therein asked, which is to the effect that fears being now seriously entertained as to the total destruction of the fur-seal, or sea-bear, a series of queries has been issued on this interesting subject with a view to their protection.

I have therefore the honour to request that your Excellency will kindly cause steps to be taken to obtain the desired information as to the pursuit, capture, or preservation of these valuable animals in Argentine waters for transmission to the Governor-General of the Dominion.

I avail, &c.

(Signed) F. PAKENHAM.

SEÑOR ZEBALLOS TO MR. PAKENHAM.

[Translation.]

BUENOS AYRES, *December 14, 1891.*

SEÑOR MINISTRO: In reply to your note addressed to my distinguished predecessor on the 12th September last, I have the honour to inform your Excellency that the taking of seals, as also the working for profit ("exploitacion") of any natural product of the south coasts, is prohibited by law, and for a long time this has been the case with this branch of national industry.

Further, from what I can judge of the case, I am able to tell your Excellency that the Executive Power has asked Congress for authority to concede some fishing concessions to certain persons, who will be obliged to supply the necessary information for the publication of the projects presented to the Legislative Body.

I avail, &c.

(Signed) ESTANISLAO ZEBALLOS.

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169 *Memorandum on the Seal Fishery in Uruguay, by Mr. Ernest Satow.*

The seal fishery in the Republic of Uruguay is carried on at three points on the Atlantic coast, namely, Lobos Island, at the entrance to the Rio de la Plata, at the Castillos Islands further north, and at Coronilla group, near the Brazilian frontier.

Two kinds of seals are known there, namely, the fur-seal, and the common single-hair seal. The male of the latter species is large, and of a dark brown colour, while the female is much smaller, and of a yellow colour.

At Lobos Island there is an establishment for steaming down the oil and salting the skins, besides huts for the accommodation of the sealers who live there during the killing season.

At the highest point of the island is a large "corral," or inclosure, capable of holding several thousand seals. When not engaged in killing, the sealers remain in the vicinity of their huts, but when the superintendent sees a favourable opportunity, which happens usually during cold winds from the southeast, in consequence of the seals coming high up out of the water, he sends the men down to intercept them, and by making loud noises to drive them into the corral. Then, as convenience suits, a certain number of seals are let out by a door on the opposite side to that by which they entered, and driven to the killing ground, where they are quickly dispatched

by a blow with a club. The establishment for the Castillos Islands is at Polonia, on the mainland, whence the sealers proceed in boats when they judge that there is a favourable opportunity.

The general opinion seems to be that there has been no diminution in the number of the seals, at any rate of recent years. In 1876 a Decree was issued establishing a close season from the 16th October to the 31st May, and this Law is strictly enforced. A copy in translation is annexed.

As has been seen above, there is no pelagic seal-fishing off the coast of Uruguay.

The figures of the export of seal-skins and *nutria* skins (the latter is a large fresh-water rat, *Myopotamus Coypus*, inhabiting the rivers) for the last six years preceding 1891 are as follows:

1885	25,885
1886	24,191
1887	42,348
1888	22,542
1889	30,211
1890	38,462

Although there is thus considerable variation in the yield of the fisheries, there does not appear to be any ground for supposing a constant diminution.

The female fur-seal produces one at a birth, the male pups being the more numerous. The pupping season begins in November. The mothers are very careful of their young. When the latter are about a fortnight old the mothers take them down to the water and teach them to swim. They suckle their young for nearly a year. The seals never entirely abandon the islands, but go to and fro their fishing banks, which are not far off.

The mating season is in December and January. During this time the males often fight savagely for possession of the females, and numbers may be seen lying on the islands or shore of the mainland helpless from their wounds.

The fisheries in Uruguay are leased to a private Company, of which Don Guillermo Lafone is Managing Director.

DECREE ESTABLISHING A CLOSE SEASON.

[Translation.]

The Government being unable to remain indifferent to the denunciations of the periodical press with reference to the abuses committed in "exploiting" the amphibious animals that populate the Islands of Lobos, Espinillo, and Polonia, and the regulation of this industry, implying not only an advantage for the Company which pursues it, as well as a duty appertaining to the public Administration charged with the preservation and development of those factors of the national wealth, the Provisional Governor in Council decrees:

Article 1. The slaughter of seals on the above-mentioned islands shall commence on the 1st day of June, and terminate on the 15th day of October in each year.

Art. 2. The Civil Administrator of the Department of Maldonado is charged with the execution of the present Decree, and he will take the necessary measures for its due execution.

Art. 3. Let this be communicated, published, and deposited in the public archives.

(Signed) LATORRE.

(Countersigned) JUAN A. VASQUEZ.

MONTE VIDEO, *May 13, 1874.*

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170 APPENDIX (C).

VARIOUS LETTERS AND COMMUNICATIONS RELATING TO THE FUR-SEALS OF THE BRITISH COLUMBIAN AND NEIGHBOURING COASTS.

Questions addressed to District Indian Agents on the Coast of British Columbia.

[These questions, prepared by Dr. Dawson, were kindly forwarded by Mr. A.W. Vowell, Superintendent of Indian Affairs in British Columbia, to the three Coast Agencies, in the summer of 1891.]

1. Are fur-seals found or hunted by Indians in any part of your district? If so, at what seasons are they found in greatest numbers, and about what dates are they first and last seen each year?

2. Are fur-seals known to give birth to their young on or about any part of the coast in your district, and, if so, at what places and in what seasons?

If young pups are observed, please state whether the Indians know their mode of birth, *i. e.*, whether born on shore or at sea.

3. Do any of the Indians in your district know of breeding places formerly resorted to by the fur-seal, or do they remember to have heard that such breeding places formerly existed?

4. Have the fur-seals been more or less abundant on the coast within the past few years?

Information received in reply to the foregoing Questions.

WEST COAST INDIAN AGENCY, *Nanaimo, July 30, 1891.*

SIR: In answer to Circular of the 20th July, received from India Office, I have the honour to state that fur-seals are hunted by the Indians on the west coast, and are found in great numbers in February. Are first seen in December and last in April—that is close in shore. After that they begin to travel along the coast of Vancouver Island and Queen Charlotte Islands towards Behring Sea. Fur-seals are not known to give birth to their young on any part of the coast in my Agency. All Indian sealers inform me that seals are born on shore (from their experience in Behring Sea, where many females are killed), and that the mothers leave the young on shore in daytime, going some miles out to sea in search of food, returning at night. Indians in my district do not know of any breeding places formerly resorted to by the fur-seal, nor do they remember to have heard of such places.

With regard to the last query, I should say that the fur seal have been less abundant on the coast the last few years, as the schooner coast catch has been less than formerly. From the Barclay Sound Indians report the seals have been unusually abundant this and last season, but were scarce for three seasons before. The reason given to me by one of the best Indian sealers in Barclay Sound for the number of seals in the mouth of the Sound this year was that the hunters on the schooners who seal farther from shore than the Indians shoot at the seals so much that it frightens them in shore, of which the Indians, who use only spears, take advantage, and get the skins they want without frightening them away; also the seals follow the herrings for food. Some 1,300 skins were taken to Victoria this spring at one time speared by Indians in or near the mouth of Barclay Sound.

I have, &c.

(Signed) HARRY GUILLOD, *Agent.*

Dr. DAWSON,
(Care of C. Todd, Esq., Metlakahtla.)

KWAW KEWLTH INDIAN AGENCY, *Alert Bay, August 13, 1891.*

SIR: I have the honour to forward, as requested, the information which I have obtained from the Indians at the north end of Vancouver's Island, viz., the Nūwitti Indians on the east, and the Kwātsēno Indians on the west side, as these are the only two tribes in my Agency who hunt the fur-seal.

The fur-seal is found in greatest numbers about the last week in December, and continue to be seen for about a month or six weeks, when they decrease in numbers, and are only occasionally seen after that time.

The Indians have never known them to have young during the time they are in the neighbourhood, and none have been killed younger than about six months old.

They have never heard of any breeding grounds in the vicinity.

They say that during the last two years the fur-seals have not been nearly so plentiful as in former years, and this year few have gone out to hunt them on that account.

The Indian name here for the fur-seal is "kā-whā."

I have, &c.

(Signed) R. J. PIDCOCK, *Indian Agent.*

Dr. DAWSON, *Metlakahtla.*

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171 NORTH-WEST COAST AGENCY,
Metlakahtla, B. C., September 4, 1891.

SIR: In reply to a Circular letter from the Superintendent of Indian Affairs at Victoria, dated the 20th July, 1891, requesting my answers to certain questions concerning the habits and haunts of the fur-seal in British Columbia waters, after full and exhaustive inquiries, I have the honour to subjoin the following:

1. Yes; they are hunted and killed by Indians all along the north-west coast and Queen Charlotte's Islands, their route whilst travelling south being near the coast-line east of Queen Charlotte's Islands, and returning to the northward mostly on the west side of said islands.

They first appear going south about the middle of December, and disappear going north about the end of May in each year.

The fur-seals are most numerous during the months of January, February, and March.

2. No; occasionally a last year's pup is found, and during April and May many female seals have been killed with young so near birth that they have been taken from the old seals and have lived, can swim about, and have been raised by Indians.

The Indians all state that the mother seals go far north to give birth to their young; that seals are born on shore far away.

3. No such places known to the Indians of this district.

4. Indian tradition makes fur-seal very numerous long ago, but the present generation of Indian hunters think that they have been the same as now for at least twenty years.

During last spring (the Indians think) the seals were as numerous as ever, but few were caught owing to continued rough water.

I inclose a letter from West Huson, Esq., a man well acquainted with the Bella Bella Indians and their hunting work, which disproves the statements originating at Bella Bella that the fur-seal bring forth their young amongst the kelp beds in Queen Charlotte's Sound.

I have, &c. (Signed) C. TODD,
Indian Agent, North-west Coast Agency.

Dr. DAWSON.

Letter from Mr. A. W. Huson, inclosed by Mr. C. Todd.

BELLA BELLA, B. C., *August 17, 1891.*

DEAR SIR: As per request I have made several inquiries at China Hat and at this place regarding breeding places of the fur-seal, but find that none of the natives know of any breeding rookeries of the fur-seal in this part of British Columbia. Some say the seals have their young off shore in kelp patches, then others say they bring forth their pups on the outlying rocks along these shores, but none of the natives ever saw their pupping places; most of them say the mother seal goes a long way off to pup.

Mr. Clayton says he is positive that the fur-seal do not bring forth their pups on this part of the coast.

Respectfully yours,

(Signed) A. W. HUSON.

J. TODD, Esq.

Extract from Letter from Mr. A. W. Huson, dated Victoria, B. C., October 16, 1891, and addressed to Dr. G. M. Dawson.

The fur-seal come into Queen Charlotte Sound early in December, and are mostly all females in pup. A little later on the grey pups make their appearance close in shore if the weather is bad, so that the natives kill many of them in sight of their villages, and on one occasion, some twenty years ago, a great swarm of grey pups ascended to the very head of Knight's Inlet so thick that I knew of one native killing sixty in one day. However, this was an exception, it was in the month of March, and the young seal seemed to be falling in and feeding on the *ulachan* that always ascend Knight's and Kingcome Inlets.

Nearly every winter fur-seals, both old and young, are to be seen in about the waters of Queen Charlotte Sound, coming in in December and leaving again about April.

The number usually killed by the natives depends on the weather.

I have traded in as high as 600 skins from the natives of Nawitti in one year.

There are no rookeries about the north end of Vancouver Island that I know of.

The natives say the females go off into the kelp patches to bring forth their young.

Extracts from Letters to Dr. G. M. Dawson from Mr. J. W. Mackay.

Under date of the 13th November, 1891, Mr. Mackay writes as follows:

"The old Indian hunters of the Songees, Sooke, and Clalan bands often informed me that in their younger days fur-seals and sea-otter were in the habit of landing in great numbers at the Race Rocks, 11 miles from Victoria; they also frequented the Gulf of Georgia. I have bought fur-seal skins from the Seshahls who inhabit the

Jarvis Inlet, taken from animals killed at Sangster's Island, near Texada. These animals were driven to the ocean from the narrow waters by being hunted with the use of fire-arms; during the spring numbers of the young animals fish in the broken waters inside of the outlying half-tide rocks and reefs which fringe the western shores of Vancouver Island and of the other islands which lie west of the main-
land from Queen Charlotte Sound to Dixon's Entrance. The older animals
172 remain further at sea, but numbers of them take shelter in the larger sounds
during stormy weather. I have seen them off Metlakahtla in the month of January. They were first systematically hunted by the Whites about 1856. The Indians took to hunting them some two or three years later; before that period they merely killed them when they happened incidentally to come in their way, as they did with most other wild animals; up to that period the beaver, marten, mink, land-otter and sea-otter were the only animals which the Indians systematically hunted for their skins.

"The Indians above quoted stated that the fur-seal bred on the Race Rocks, on Smith's Island (Wash.), and on several islands in the Gulf of Georgia. They used to have their young to within a recent period on the Haystack Island, off Cape Scott, Vancouver Island. It is probable that a few individuals still breed there, these islands being very inaccessible to small craft, on account of the strong tides and cross currents which prevail in that neighbourhood."

A further inquiry addressed to Mr. J. W. Mackay on the subject of the former breeding of fur-seals on Haystack Island, elicited (under date the 7th January, 1892) the subjoined additional particulars on this and other points previously referred to.

"Respecting your query of the 1st instant, I got my information from the late Captain Hugh Mackay, of the schooner 'Favourite.' Mackay was the first person to practise the taking of the fur-seal in the open ocean, and using a seaworthy vessel as the starting point and for shelter. The idea was suggested to him by the Indian hunters, who represented to him the difficulties and dangers of following the seals far from land in open canoes, and asked him to take them out in his schooner. He acceded to their demands, and success followed the operation. Mackay died about twelve years ago. He was an intelligent Scotchman from Sutherlandshire, a cooper by trade; he collected much trustworthy information during the twenty years in which he was occupied trading on the west coast of Vancouver Island. I believe his statement respecting the fur-seal on Haystack Island, as it agrees with the accounts which I got in early days respecting individual fur-seals having their young in the unfrequented parts of the coasts of Vancouver Island. Mr. Huson is probably correct as regards the landing of sea-lions on the Scott Islands. In former times these animals extended their peregrinations all round Vancouver Island. I was one night kept awake for hours by the roaring of the male animals on Smith Island, off the south entrance to Rosario Strait. The sea-lions would not interfere with the movements of the fur-seals, and both varieties might herd together."

From a further correspondence respecting the date at which Captain Hugh Mackay first attempted sealing at sea the following are extracts:

January 20, 1892.—"The date of Hugh Mackay's beginning to take the fur-seal at sea may be arrived at approximately by an examination of the Customs Records at the port of Victoria, British Columbia. Mackay owned the sloop 'Ino;' with her he traded oil and furs from the Indians of the west coast of Vancouver Island. He made his first experiment on the fur-seal at sea with the 'Ino;' finding this vessel too small to carry two or three canoes on deck, he built the schooner 'Favourite,' of 75 tons burthen. The 'Favourite' was registered at the port of Victoria. The date of her register will be about eighteen months subsequent to the 'Ino's' first fur-sealing cruize. I shall write to Mr. Milne, the Customs Collector at the port of Victoria, to give me the date of the 'Favourite's' first register, and shall communicate results to you."

January 31, 1892.—"I am informed that the schooner 'Favourite' was launched at Sooke, British Columbia, on the 28th April, 1868. She was registered in Victoria on the 18th June, 1868. Hugh Mackay was registered owner and master; on this data we may conclude that the first attempt at taking the fur-seal at sea was made by Hugh Mackay in the spring of 1866, say, February 1866. The above information is from the Collector of Customs at the port of Victoria, British Columbia."

Extracts from Letters from Judge James G. Swan, of Port Townsend, State of Washington, addressed to Dr. G. M. Dawson.

Under date of the 4th November, 1891, Judge Swan writes:

"Your letter of the 28th October was received this morning. I promised you, when we met in Victoria, to send you certain information relative to the seal catch at Cape Flattery, and particularly regarding the date when schooners first took out Indians with their canoes on the sealing grounds. But there has been no official record, and

I have had to rely upon the recollection of individuals, which has proved very unsatisfactory. To-day I received a note from Captain E. H. McAlmond, of New Dungeness, Washington, in reply to a letter from me. Captain McAlmond writes, 1st November, 1891: 'The first schooner to take Indians that I know of was the schooner 'Lottie' in 1869 from Neah Bay; believing that we were the pioneers, I afterwards understood that a vessel from Victoria was also taking an Indian crew.'

"On the 28th October last I received from Mr. Charles Spring, of Victoria, a letter, dated the 27th, in which he writes: 'The first attempt at sealing, in a practical way, with schooners and Indian hunters was made in or about 1869 by James Christienson in the schooner "Surprise," owned by the late Captain William Spring, of Victoria, British Columbia.' This is evidently the vessel referred to by Captain McAlmond. No record of catch has been kept by any one that I have ascertained, and the recollection of individuals is very uncertain. For instance, Captain James Dalgardno, for many years a Puget Sound pilot stationed at Neah Bay, was quite certain that schooner 'Potter,' of Port Townsend, took Indians with canoes to the sealing grounds in 1861. But Captain McAlmond, who was at Neah Bay the same time, writes in the letter received from him to-day: 'Captain Norwood, in the "Potter," took Indians to pilot him to the halibut bank.'

173 "The only official account of the seal catch at Cape Flattery that has ever been kept is the one I had charge of for the tenth census of the United States under instructions from Professor Spencer F. Baird, to make a full Report on the fisheries of Cape Flattery, including fur-seals. This Report, in full, may be found in 'The Fisheries and Fishing Industries of the United States,' section 5, vol. ii. This is the most complete and reliable Report ever published of the Neah Bay fisheries, and was compiled by me during the entire year of 1880 while I was in the official capacity of Inspector of United States Customs, stationed at Neah Bay. Since that time no account has been kept of an official nature, and any attempt to make up a statement would be mere guesswork, and utterly unreliable. I think Captain Charles Spring, who was with us during our interview in Victoria, is a thoroughly reliable man, and his statement of seal statistics the most correct that I have known. I have endeavoured to obtain statistics from parties at Neah Bay, but without success.

"The whole of the seal catch by the Indians of Cape Flattery has been sold in Victoria, and I think, classed with other skins procured from the west coast Indians. I would have supposed that the Indian Department at Washington, ever mindful of the good effect on members of Congress it is to make a good showing of Indian industries, would have instructed the Indian Agents to have kept a record similar to mine, so that they could show to Congress that the Makah Indians of Cape Flattery are a self-supporting people. Had such a record been kept, its value at this time would have been appreciated, but it seems to have been the policy of the authorities at Washington to ignore all knowledge of seal industries except those of the Pribyloff Islands; hence the impossibility at the present time of reaching any reliable results."

Under date of the 10th January, 1892, Judge Swan writes:

"Your kind letter of the 22nd December was received on the 31st. Since then I have been endeavouring to obtain past statistics of the seal business at Cape Flattery, but without success. I have, however, arranged with an intelligent half-breed Makah Indian, who has the agency store and trading post at Neah Bay, to keep an accurate account of the catch during the present season.

"Yesterday a number of Makah Indians came to my office, and I had a long interview with them. They told me that they had come to fit out their schooners 'Lottie' and 'James G. Swan' for sealing. These schooners are in winter quarters in Scow Bay, opposite the city. Those Indians say that seals are unusually plentiful at Cape Flattery and Barclay Sound, and if the weather is good they hope to make a large catch."

Under date of the 6th February, 1892, Judge Swan writes:

"I have seen several Makah Indians who have been here, and they tell me that Indians lose very few seals, whether they spear or shoot them, as they are always so near the seal at such times that they can recover them before they sink.

"Captain Lavender, formerly of schooner 'Oscar and Hattie,' who is a fine shot, told me that he secured ninety-five seals out of every hundred that he shot. He said that poor hunters, of which he had several on his vessel, would fire away a deal of ammunition and not hit anything, but would be sure to report on their return to the vessel that they killed a seal each time they fired, but that all the seals sank except the few which they brought on board. Captain Lavender was of opinion that not over 7 per cent. of seals killed were lost."

Judge Swan to Dr. G. M. Dawson.

STATE OF WASHINGTON, *December 15, 1891.*

DEAR SIR: I have just received from Neah Bay the following names of vessels engaged in sealing from Neah Bay in 1890 and 1891, with the number of seal-skins taken by each vessel.

1890.

Schooner—	Skins.
Swan	136
Lottie	120
Teaser	250
C. C. Perkins	30
	536

1891.

Swan	160
Lottie	480
C. C. Perkins	190
Teaser	195
	1,025

The schooner "Teaser" is owned in Seattle, the "Swan," "Lottie," and "C. C. Perkins" are owned by Indians at Neah Bay.

Yours truly,

(Signed) JAMES G. SWAN.

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174 Under date of the 28th November, 1891, Judge Swan writes:

"The same letter informs me that schooner 'Lottie,' Captain Peter Thompson, was the first vessel which took Indians and canoes from Neah Bay to hunt seals. This was in 1869; the 'Lottie' was a pilot-boat at that time. She is now owned by Captain James Claplanhoo, a full-blood Makah Indian, and Head Chief of the tribe. Last spring the 'Lottie' went to Behring Sea and did very well. Captain Claplanhoo, after paying all costs of the voyage, had 7,000 or 8,000 dollars left. He deposited 5,000 dollars gold in the Merchant Bank in this city. He will buy another schooner and try his luck again next season.

"I am amused with reading the remarks of correspondents of the eastern press about seals. They only know what they have seen and been told on the rookeries, but of the migratory habits of seals they know nothing and care less. I have always contended, and still hold my opinion, that the seals are not in one great band, but in countless herds, like flocks of wild geese or the bands of buffalo. Geese do not all fly to the Arctic, as was once supposed, nor did the buffalo of Texas go north to the Saskatchewan in the summer, or the herds of Winnipeg visit Texas in the winter.

"All the bands of fur-seals in the North Pacific do not go to the Pribyloff Islands, and there are thousands which do not visit Behring Sea at all. But these writers, who assume to know all the facts, never discuss this question, Where do the seals go when they leave Behring Sea?

"If the killing of fur-seals is prohibited *on the Pribyloff Islands* during the breeding season there will be no fear of extermination. That butchery is driving off the seals more than the so-called poaching.

"I inclose an article from the 'Seattle Post Intelligencer' of the 5th on fur-seals, written by myself. It was published in the Sunday issue, but the demand was so great that every copy was sold, and another edition published in their weekly the following Thursday. The editor told me that it has been extensively copied in the leading journals of the east."

Extract from the "Seattle Post Intelligencer" of November 5, 1891.

[Special Correspondence.]

PORT TOWNSEND, *October 31, 1891.*

The investigations of the United States and British Commissions in Behring Sea during the present season of 1891 have been the most thoroughly scientific ever made by either Government. Hitherto all the special agents sent by the United States Government from Washington City have confined their investigations and reports to the seals of the Pribyloff Islands, derived partly by their own observations, but mostly from the interested statements of persons residing at the rookeries

on those islands, the officers and employés of the Alaska Commercial Company, and the present lessees of these islands. These reports are the only ones that have obtained credit in Washington City. All adverse reports of sealers or parties engaged in the fur trade outside of the powerful monopolies have been either ignored or set aside with contempt. The controversy so far has been between organized capital seeking to secure a monopoly and private traders and fishermen, most of whom are men of small means seeking by their own exertions to secure a profit. These latter have never combined or formed associations for their own protection, so as to have their side of the question fairly considered and discussed in Washington City. Both parties have been stimulated by greed, and not by a desire for scientific investigation.

When the Reports of the United States and Royal Commissioners are published enough new facts will be produced to make a material difference between what has been dogmatically and persistently asserted by interested writers in the employ of the Alaska Commercial Company, and the real state of the case, enough to call for a modification of the present stringent Sealing Laws.

It is persistently asserted by the lessees of the Pribyloff Islands that the seals are disappearing, and that they are being exterminated by the sealing schooners, whom careless writers term poachers. Poaching cannot be done where there is no preserve, and the only preserve is on those islands leased by the United States Government to the Sealing Companies. The open sea is not, and cannot be, in any sense a preserve. Hence to call sealing-schooners poachers is an evident error which should be corrected. These vessels are not poachers on the Pacific Ocean any more than they were poachers on the Atlantic Ocean before they came around Cape Horn.

The full sealing fleet list to the 20th June, 1891, amounted to 79 vessels, 47 of which are under the British flag; 30 are under the United States flag. All are of North American build. The British vessels mostly came from Nova Scotia; a few were built in British Columbia, and the rest were purchased from citizens of the United States. The American vessels were mostly from Massachusetts, some from San Francisco, and a few were built on Puget Sound. Other vessels have been added to the fleet, but their names and tonnage I have not been able to ascertain. It is charged by the lessees of the islands that these 79 vessels have destroyed so many seals, and have driven so many off the islands, that they are in danger of being exterminated, and the wailing of these unfortunate capitalists has induced the Governments of the United States and Great Britain to send their armed cruizers to Behring Sea to put a stop to the killing of seals by private enterprise, so that the lessees of the islands may be protected and the poor seals kept from being utterly exterminated. These specious assertions, urged with eloquent sophistry, have deluded eastern people, and especially those at Washington City, into a belief that our hard-working fishermen and hunters upon the high seas are working a great wrong to the monopolists and the nation at large, and must be suppressed by force.

Now let us see who is really working an injury to the monopolizing capitalists, and the real causes why the intelligent fur-seal is leaving the leased rookeries on the Pribyloff Islands.

A writer in the London "Weekly Times," of the 12th September, 1891, who
175 was in Behring Sea as a reporter on the steamer "Danube" during the past summer, says of the decrease of the seals on the Pribyloff group:

"The cause of this is, no doubt, the indiscriminate slaughter of these animals on the islands by the Alaska Commercial Company and the present Company's servants, which has driven the seals to other parts of the sea for breeding, and already, the present season, considerable numbers have made their appearance on St. Matthew's Island, where formerly they did not resort, the two islands St. Paul and St. George being the great rookeries."

The seals begin to make their appearance in the region about Cape Flattery in the latter part of December or the first of January, varying with different seasons. When easterly winds prevail with much snow they keep well off shore, and do not make their appearance in great numbers before the middle of February or the first of March. Last winter was very mild, with but little snow, but the prevailing winds, which were south and south-west, were exceedingly violent, preventing sealing-schooners from doing much hunting. The mildness of temperature, however, with the direction of the prevailing winds, drove the seals toward the coast in incredible numbers. They gradually work up the coast toward Queen Charlotte Island, when the larger portion of the herds move along the Alaskan coast toward Unimak Pass and other western openings into Behring Sea. A portion of these seals, however, pass into Dixon's Entrance, north of Queen Charlotte Island, and into Cross Sound and Cook's Inlet, and do not go to Behring Sea, but have their young on the innumerable islands, fiords, and bays in Southern Alaska and British Columbia. These seals are seen in these waters all summer, at the same time of the breeding on the rookeries of the Pribyloff Islands, and are killed by Indians and the skins sold to dealers. The great body of the seals, however, do enter Behring

Sea, where they are followed by the sealing-vessels. They usually take to the islands about the first of June, the breeding cows and bulls being earlier than the rest of the herd. The breeding goes on about four months.

The writer in the London "Times" before alluded to says of the method adopted on the islands for taking the seals, that:

"It is cruel and unsportsmanlike. The animals have no chance for their lives, but are slaughtered like sheep in the shambles. A portion of the herd is separated from the main body by a party of men armed with clubs. These men—they can hardly be called hunters—by shouts and blows drive the part of the herd they have surrounded away into the interior of the islands, a mile or so from the beach. Here, on a clear space, the unfortunate seals are at once clubbed to death and skinned, the carcases being left as they lie. These slaughters are carried on until the number of skins required are secured. Latterly the seals seem to have an instinct that there is something wrong, as the squads driven into the sand-hills never return, only the stench from the slaughter coming down to the beach when the land breeze blows. In consequence of this the rookeries have been less frequented than in former years. This has given rise to the assertion of the monopolizing Company that the taking of seal by the private vessels is causing a depletion of the seals on the breeding islands.

"When the methods adopted by the hunters of the sealing-vessels are compared with those of the licensed killers, those barbarous butchers, it does not require much consideration to give an intelligent judgment in the case, and determine which method is the most humane and which method is the real cause of the seals leaving the rookeries.

"When the sealing-schooner is at sea she has a number of small boats of a canoe form, built expressly for sealing. When a seal is sighted a boat is launched overboard, a hunter, with one or two men to pull the boat, quietly take their places. The hunter is armed with shot-guns and rifle. The boat is pulled quietly toward the seal. In nine cases out of ten the animal takes alarm and dives out of sight before the boat is near enough for the hunter to shoot, and in no case does a hunter shoot until he is near enough to be certain of the game. As soon as a seal is shot it begins to sink slowly, and the boat is pulled rapidly up to it, the carcase is gaffed and hauled aboard. This is repeated as long as a seal can be seen. In many instances only one or two will be killed during a whole day's hunting, but at other times as many as twenty or thirty will be taken. After a day's hunt the boats return to the schooner, the seals are skinned, and the pelts laid in salt in the hold. This goes on from day to day during the season. A small boat is not a very safe craft in the boisterous water of the Northern Ocean, and the thick fogs often spring up and hide the schooners from the hunters' sight, when days may elapse before the boats are picked up, and sometimes they are never found. Thus these hardy sealers pursue the objects of their chase in the open sea. The seal has a chance of escaping, and the percentage killed is very small. When it is considered that an extent of ocean of nearly 12,000 square miles is hunted over, the chance is slight of the seals being exterminated by the fleet of sixty or seventy vessels engaged in the seal-hunting business.

"It has been asserted that only a few seals out of every hundred shot are captured by the hunters, and the balance sink or escape wounded to die later on. This is not so. The ample evidence collected by the Commissioners this season proves that a seal hardly ever escapes when shot. Of course, a few do, but not over five or six out of the hundred.

"The sealing monopolists of the rookeries have had reports made by so-called 'experts' on the condition of the sealing business and on the probable effect on seal life if the present rate of killing is to be kept up. All, or nearly all, of these 'experts' have reported that but few seal are left; that the piratical poaching schooners had killed them off, and yet the whole of the persons interviewed by the Commissioners, masters of sealing-schooners, Indians along the coast, and traders admitted that the seals are in no ways diminishing in numbers, but that the present season of 1891 the fur-seals in the North Pacific have been more numerous than for the past twenty years. There is, however, much greater difficulty experienced in capturing them. The wary animals have learned what a sealing-boat is, and at the sound of a gun the animal is on its guard, and it is harder for the hunter to get in range of his quarry. The Indians kill the seal by paddling the canoe silently close to the sleeping animal, and then with unerring aim hurling a barbed spear with a line attached, with which the seal is hauled in and taken aboard the canoe. Seldom or never does a seal escape.

The white hunters use the gun as described."

176 Although seals have appeared in incredible numbers this present season of 1891, yet the weather all through the spring and early summer months was unusually boisterous, and days and even weeks elapsed during which time it was impossible to launch a sealing-boat or an Indian canoe, consequently the catch has not been as large as was generally expected, and recent accounts from London show that the prices brought for fur-seal skins at the great trade sales did not average over 13 dol-

lars. As prices from 17 to 22 dollars were paid in Victoria for these skins, somebody has been a great loser, and the prospect now is that fewer vessels will engage in the business next season, and that prices will rule still lower.

Of the migratory habits of fur-seals but little has hitherto been made known, for those who have had the information to give have had an interest directly opposed to imparting the truth. Hence the fallacious assertion has been made and stoutly maintained by the monopolists and their mendacious hirelings that all the fur-seals of the North Pacific Ocean congregated on the rookeries of the islands of the Pribyloff group, and if they are allowed to be killed by the poachers and pirates, whom the general public know as honest, industrious, energetic fishermen and hunters—the fur-seal will become extinct, and Miss Flora McFlimsey will have nothing to wear, poor girl! But the scientific investigations of the United States and Royal Commissions, and particularly the latter, who have made the migrations of the seals a special study, will show that the habits of all migratory animals, both birds and beasts, are governed by natural laws. The seals, like the great herds of buffalo, formerly so abundant, and the myriads of wild fowl from the north, are not (each kind) one single great body. The buffalo were found in great droves from Texas to the Assiniboine and the Red River of the north, but they were not all in one band. The herds from Lower Texas never went north to the upper limits, nor did the herds of the extreme north ever seek their feeding ground in Southern Texas. Every band had its own range. So of the Canada geese and other wild fowl, which were popularly declared to visit the regions of the North Pole every spring to propagate their young. No one thought or dared to assert to the contrary, but when Colonel Goss, the celebrated ornithologist, found the nests and eggs and young of the Canada goose in Kansas, and other observers have discovered these so-called Arctic breeders rearing their young at the head-waters of the Missouri and Mississippi, it was found that popular belief regarding natural history is not always scientific fact, and so as to the habits of the fur-seal. They do not move in one immense herd to Behring Sea, but in droves and bands or schools like fish, all over the great expanse of the North Pacific Ocean. Dr. Dawson, of the Royal Commission, said, as reported in the Victoria "Colonist" of the 13th October:

"Very little has been published about the migrations of the seals on the North Pacific coast before they enter the Behring Sea, and this point is one from which we got a lot of interesting matter. We have taken a good deal of evidence about the presence of seals at Cape Flattery, and have been told that they were more numerous last spring than they have ever been before. . . . . I find a peculiar idea existing among those who claim to be authorities in regard to seals found in the waters of South America, especially about Tierra del Fuego and the Straits of Magellan. The notion that they are the same species of seal as those found in Behring Sea and the North Pacific is quite erroneous. They are of a different genus altogether."

So also will these scientific investigations show that a portion of the so-called California seal, which comes north every season, does not enter Behring Sea at all, and that its habits in many respects differ essentially from those which visit the rookeries on the Pribyloff Islands. These California seals do have pups somewhere on the coast, either at the Farallones or further south, or on the great kelp patches, as is clearly shown by the young pups which annually make their appearance with the herd, and are taken and brought into Neah Bay by the Indians every season, and it is further proved that these pups will swim at birth, and even when taken from their mother before birth, thus showing a difference of habits between the Pribyloff Islands seal and those taken at Cape Flattery. These facts about the habits of the fur-seals of Cape Flattery, which I have known for more than thirty years, have this year been proved to be correct by the Royal scientists, and will seem to show there are always two sides to every question. While I join with all the sealers with whom I have conversed that there should be a close season on the Pribyloff Islands, when no seals should be killed on those islands or in Behring Sea, I equally join with some of the more intelligent and observing of these sealers that the hunting of seals along the coast of Washington, British Columbia, and South-eastern Alaska does not in any way affect the seal catch on the Pribyloff Islands, as there is every reason to assume that these coast seals never enter Behring Sea.

When we consider how the development of the fisheries of the North Pacific have been paralyzed by this seal controversy, and our fishermen have been driven by the mistaken policy of our Government to seek protection under the British flag, we may well exclaim, "This is a sorry sight." The fishermen of Gloucester and other eastern ports, who were protected by our Government in their fisheries on the Atlantic, almost to the verge of hostilities with Great Britain, find that when they come around Cape Horn to engage in the same peaceful and honourable vocation in the North Pacific, Behring Sea, and the Arctic Ocean, they are denounced by the same Government as poachers and pirates. They take nothing but the products of the ocean. They rob no man. Yet because a powerful Syndicate of capitalists demands the right to monopolize the taking of seals to furnish articles of luxury

for the rich, our fishermen and hunters are harried and worried by revenue-cutters and other armed vessels, not for the public good, not for the benefit of the poor, but simply to gratify the avarice of the wealthy few who have secured from our Government a monopoly of seal-catching on Pribyloff Islands, which they arrogantly assume gives them the monopoly of the whole ocean, as well as Alaska.

When the Hudson Bay Company, which for more than 100 years had lorded it with despotic sway across the whole continent, from the Atlantic to the Pacific, sought to renew its Charter, those far-seeing statesmen, Gladstone, Labouchere, Lord Bury, and others opposed granting a renewal, and Parliament refused. The course of those wise statesmen against that gigantic monopoly opened to the Dominion of Canada all that great region which had been represented by the Company as a land of
177 ice and snow, of fogs and cold, fit only as an abode for wild beasts and the still wilder Indian. But it has been found an agricultural region of immense value, which has been opened and demonstrated by the Canadian Pacific Railroad to be a fit abode for thousands of industrious white persons, who have found within its borders happy homes, and have thus added to the wealth of the Dominion.

So, too, when we can have statesmen in Congress who can rise above the sordid motives of filthy lucre, and look into this seal question and the development of Alaska, and of our great fisheries, they will see that the sum paid by the Company for the lease of the Pribyloff Islands is not a feather's weight in the scales of justice, when we compare this amount, great as it is, with the vastly greater amount of good the nation will derive by giving every encouragement to our fishermen to bring in the rich products of the ocean, the whales, the seals, the fish, and to our miners and others to open up and develop the rich treasures of Alaska. All this development is retarded and paralyzed by the action of the monopolizing Companies, just as the Hudson Bay Company retarded the development of British Columbia and all that great region, clear through to Hudson's Bay and the Atlantic. Instead of emulating the example of the British Parliament and abrogating a powerful monopoly, we seem to have gone back to feudal times and granted rights and privileges to the moneyed Barons which are denied to the people. Better that every fur-seal be exterminated than the United States should enter into this unholy alliance with a monopoly to paralyze our industries and rob the people of their inheritance.

On the North Atlantic Ocean the hair-seals have been hunted for more than two centuries, and every year more vessels and larger ones are engaged in this business. Yet the hair-seal is not exterminated. The habits of the fur-seal and hair-seal are analogous—both live on fish, both are amphibious; but the commercial value of the fur-seal is the greatest, and while our fishermen can kill all the hair-seals they wish the fur seal must be reserved for those who have longer purses and can cajole Congress by their sophistries.

The fur-seals never will be exterminated. They may and have been driven from their rookeries, but they have found others, and if they are being driven from the Pribyloff Islands, as is asserted, I predict that when the wholesale butcheries are stopped and the stench of the rotting carcasses no longer pollutes the atmosphere of St. Paul's and St. George's rookeries, the seals will return to their old haunts, as they are now returning to their former rookeries at Cape Horn and other places in the South Pacific. In all the preceding years of the history of the sealing on the Pribyloff Islands, the Captains of the revenue-cutters have not been required to make specific Reports on their observations of fur-seals off the rookeries, and any voluntary statements they may have made were either pigeon-holed or not considered good form, hence we have no knowledge of any such Reports. This season, however, the Captains have been required to make Reports on their observations of fur-seals and their habits off of the rookeries, and their testimony, added to the Reports of the Commissioners, will furnish much interesting information which has hitherto been suppressed.

If the Government will prohibit the killing of fur-seals on the Pribyloff Islands and in Behring Sea during the breeding season, and will encourage our fishermen as they are encouraged on the Atlantic, the seals will not be driven off nor the market overstocked, and, better than all, encouragement will be given to the development of our fisheries by furnishing a motive for a fishing fleet to congregate on Puget Sound, and by the products of their labours to enrich our State. If such a course is pursued one will hear no more of American vessels being driven under the British flag for protection from the United States Government, which should protect them. Our Government is very jealous of injuries and insults put upon our citizens by foreign nations, but not a word is said of the injuries and losses our citizens have incurred by our Government in sustaining and protecting a monopoly on the seal islands. It is a disgraceful partnership between the United States and these monopolists, which should be dissolved. It is an old adage that "when thieves fall out honest men get their dues," and I hope that the present feud between the two rival Companies may bring Congress to a clear understanding of this matter, and our fishermen allowed the same privileges and encouragement that they have in the North Atlantic.

(Signed) JAMES G. SWAN.

Letter from Captain John Devereux, addressed to Ashley Froude, Esq., Secretary, Behring Sea Commission.

GRAVING DOCK, *Esquimalt, November 10, 1891.*

SIR: In reply to your letter of the 28th ultimo, respecting the habits of the fur-seal along the coasts of British Columbia and Alaska, I beg to report as follows:

1. From the early part of December to the beginning of June they are found near the edge of the bank of soundings along the coast from south of the Strait of De Fuca to Cape Scott Islands on the west coast of Vancouver Island, and that about the middle of June they disappear altogether, and are seldom seen again until late in November or early part of December, when the weather is then too rough for all practical purposes to catch them.

2. The distance from the shore where they are to be found most plentiful—say off Cape Beale, where the bank extends furthest from the land—is from 30 to 100 miles, and in some cases to 150 miles; but these figures must not be taken by any means as a fixed limit, because they are frequently found inshore and up the sounds some 8 or 10 miles inside the headlands, and, in fact, I have seen them in the Strait of Fuca, and on rare occasions in the Gulf of Georgia even.

3. When they are found along the bank on the west coast of Vancouver Island they are feeding on their natural feeding grounds, where they feed upon all kinds of fish in season—of which we have a variety on this coast of some thirty odd species—however, the herring is their principal food, and then comes the salmon and other varieties, and so long as the fish are plentiful the seal never leaves
178 the feeding ground, but when the herring, salmon, smelts, and others proceed northward and into the inlets, harbours, rivers, &c., to spawn, the seals follow them, but so soon as they find shoal water they go to sea again. Now some of our inlets on the west coast are from 50 to 100 fathoms deep, and the seal is quite at home in them.

4. As far as my observations have extended regarding the increase or decrease in their numbers, and I have been on this coast twenty-seven years, all I can say on the subject is that when they return to their feeding grounds after their periodic migrations they appear to be in numbers very similar to the salmon, herring, smelt, oolachan, &c. Some years they are found in inexhaustible numbers, then for a year or two they will be scarcer, only to return in the following year in as great abundance as ever, and it is my firm belief that if the fish never left the banks fringing the west coast of British Columbia and Southern Alaska the seals would never leave their feeding grounds, for the only food they can get in Behring Sea is codfish, which is by no means so plentiful as the herring, smelt, and oolachans further south.

As to the distance they preserve from the shore-line, I do not believe there is any difference, for instance, in the months of November, December, and January the salmon and herrings, &c., are far off shore, and as spring advances they approach the land in shoals and the seals follow them. The herrings come in first, the salmon follows, and feeds upon them, and the seal feeds upon all, although the herring is its favourite food.

Any other information as to the history of seal-fishing in this province, &c., I can supply if necessary.

I am, &c.

(Signed) JOHN DEVEREUX, *Dock-master.*

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179 ## APPENDIX (D).

MISCELLANEOUS CORRESPONDENCE AND MEMORANDA.

1. Behring Sea Commissioners to Her Britannic Majesty's Consuls-General at Shanghae, Canton, and Honolulu.
2. Her Britannic Majesty's Consul at San Francisco to Behring Sea Commissioners.
3. Her Britannic Majesty's Consul-General at Shanghae to Behring Sea Commissioners.
4. Her Britannic Majesty's Consul-General at Canton to Behring Sea Commissioners.
5. Behring Sea Commissioners to Senior Naval Officer, Esquimalt.
6. Extracts from "Challenger" Reports.
7. Letter from Mr. F. Chapman.
8. Extract of letter from Baron Nordenskiöld.
9. Letter from Mr. John Murray.
10. Report of examination of dead Seal Pup by Dr. Günther.
11. Memorandum by Sir Samuel Wilson, M. P. (Sheep-breeding).

12. Memorandum by Earl Brownlow (Deer-breeding).
13. Memorandum by Professor Flower, C. B.
14. Letter from Captain David Gray, Peterhead.
15. Mr. W. Palmer, on the Killing of Seals upon the Pribyloff Islands.
16. Extract from the Melbourne "Argus," December 17 1887, (referred to by Mr. Chapman).
17. Extracts from Pamphlet by Mr. A. W. Scott on the Fur-seals of the Southern Hemisphere, 1873.

1.—*Letter from the Behring Sea Commissioners to Her Britannic Majesty's Consul-General at Shanghae.**

GOVERNMENT HOUSE, *Ottawa, November 16, 1891.*

SIR: Having been appointed British Commissioners to investigate the facts and conditions of fur-seal life and the sealing industry in the North Pacific Ocean, we find that our inquiry would be much assisted if you could furnish us with information on the following points:

1. As to the names and number of vessels sailing from Chinese ports in any given years, which have taken fur-seal at sea or on the rookeries, together with the number of skins taken and other particulars, such as the nationality of the vessels, and the numbers of their crews.

2. Any information as to the number of fur-seal skins landed at Shanghae, and the market prices of the same in any given years.

[†3. Any information on, or names of authorities for, the very considerable trade in fur-seal skins, both from the North Pacific and the South Seas, which appears to have been carried on at Canton during the earlier years of the present century.]

We should be much obliged if the above information could be forwarded to us as soon as possible, addressed to the Behring Sea Commission, care of his Excellency the Governor-General, Ottawa, Canada.

We have, &c.

(Signed) GEORGE BADEN-POWELL.
GEORGE M. DAWSON.

2.—*Letter from Her Britannic Majesty's Consul at San Francisco to the Behring Sea Commissioners.*

SAN FRANCISCO, *January 5, 1892.*

SIR: I am in receipt of your despatch, dated Foreign Office, the 10th ultimo, wishing me to obtain for the Behring Sea Commissioners the forms of clearance issued at the Custom-house at San Francisco for vessels proceeding on whaling, fishing, and sealing voyages to the North Pacific, including Behring Sea.

The precise phrases used in clearing vessels at this port upon these voyages is shown on the inclosed forms of clearance obtained from the Custom-house. Those that go hunting and fishing procure a clearance, which states that they are "bound for hunting and fishing voyage, having on board stores," and those that go whaling are cleared "for whaling voyage, having on board stores." I am informed by the Deputy Collector of Customs, who clears all vessels here, that these are the only two forms of clearance given, and that no sealing or trading clause is inserted in such forms. He says no vessels are cleared for Behring Sea. The steamers of the Alaska Commercial Company clear for Unalaska, and receive permission from the Collector of Customs there to proceed to the Islands of St. George and St. Paul.

As regards a statement of the number of vessels clearing from this port for fishing and hunting, I inclose a Memorandum which I have procured from the Custom-house at this port.

I am, &c. (Signed) DENIS DONOHOE.

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180 3.—*Letter from Her Britannic Majesty's Consul-General, Shanghae, to the Behring Sea Commissioners.*

SHANGHAE, *January 8, 1892.*

GENTLEMEN: In reply to your letter of the 16th November last, just received, asking for certain information with regard to vessels clearing from Chinese ports which have taken fur-seal, I have the honour to inform you that, as far as I can learn, no vessels have cleared for that purpose from this country, though vessels registered here may possibly have left for Yokohama with the ultimate intention of engaging

* Sent also to Her Majesty's Consuls-General at Honolulu and Canton.
† To Canton only.

in the seal fishery. Most, if not all, of the vessels engaged in the seal fisheries registered here are built and fitted out in Yokohama, and are only registered in Shanghae because it is the nearest port where English registry can be obtained.

The Imperial Maritime Customs have kindly furnished me with the following figures showing the import of seal-skins:

Year.	Pieces.	Value.
		Haikwan taels.
1887	973	1,041
1888	2,381	5,097
1889	3,450	8,114
1890	502	1,012
1891	860	1,775

The Haikwan tael is, roughly speaking, equivalent to 5*s*.

These skins have all been imported from Japan, and I am unable to say whether they had their origin in that country, or had been previously imported to it.

I am sending copy of your despatch to Her Britannic Majesty's Consul at Yokohama, who will doubtless furnish you with all the information obtainable.

I have, &c.

(Signed) NICHOLAS J. HANNEN.

4.—*Letter from Her Britannic Majesty's Consul-General, Canton, to the Behring Sea Commissioners.*

CANTON, *December 28, 1891.*

GENTLEMEN: I have the honour to acknowledge the receipt of your letter of the 16th ultimo, in which you ask for information about the fur-seal trade of this port.

In reply to your first query, I have to state that, so far as can be ascertained, no vessel sailing from a Chinese port has ever gone on sealing expeditions.

As to the second point on which you ask for information, I cannot trace any record of fur-seal skins having ever been landed at this port.

On the third point also I have been unable to obtain any information. None of the records accessible here have even a mention of a "very considerable trade in fur-seal skins, both from the North Pacific and the South Seas."

In a Consular Report on the trade of this port in 1843, Mr. Thom writes: "Twenty years ago the fur trade (which was almost entirely in the hands of the Americans) carried on with China amounted to upwards of 1,000,000 dollars annually. But, owing to the indiscriminate slaughter of the animals of the chase, it has dwindled away so much as to be no longer worth pursuing, and, indeed, during these last two or three years no skins or furs whatever have been imported into China." Mr. Thom gives the names of the furs imported into China, and fur-seals is not among them. Further, in a Return of United States imports into Canton in 1846, other furs are enumerated, but not fur-seals. In a previous Return (1831) of the United States trade in furs, I find in like manner the names of the furs exported to China, and fur-seals is not among these. But in another account I find it stated that the furs usually imported into China by United States traders in the early part of this century were rabbit, seal, sea-otter, land-otter, beaver, and fox.

The archives of this Consulate-General do not go back to the period at which the United States trade in furs with China flourished. Consequently, there are no archives to shed light on the subject. The books which I have referred to also fail to give precise information, and it is doubtful whether anything certain and definite about it can be learned here.

I have, &c. (Signed) T. WATTERS.

5.—*Behring Sea Commissioners to Senior Naval Officer, Esquimalt.*

OTTAWA, *July 8, 1891.*

SIR: As Her Majesty's Commissioners appointed to investigate the conditions of seal life in Behring Sea, it appears to us that information on the following points would be of great value to the Commission if gathered by any of Her Majesty's ships visiting Behring Sea in 1891.

We therefore venture to append, for your consideration, heads of information on matters which we have to investigate.

We have, &c. (Signed) GEORGE BADEN-POWELL.
GEORGE M. DAWSON.

181 *Records of Observations on Fur-Seal Life in the North Pacific Ocean, for the Behring Sea Commission, to be entered in a Separate Seal Log.*

1. Place of each recorded observation (possibly, marked off on separate chart by reference numbers).
2. Points to be noted in regard to seals:
(i.) Whether playing, resting, or travelling (if travelling: (α) direction, (β) pace, (γ) whether single or in schools).
(ii.) (α) Sex, age, and size; (β) whether accompanied by pups or not.
(iii.) State of weather and sea at times of observation.
3. Obtain corresponding information from any sealing-schooners visited for any immediately preceding dates, and generally record any information applying to seal life.

This Memorandum was communicated to the commanding officers of Her Majesty's ships "Nymphe," "Porpoise" and "Pheasant," who kindly caused accurate observations to be made on the points indicated.

The results of these observations are, so far as were considered essential, embodied in our Report.

6.—*Extracts from Report of the Scientific Results of the Exploring Voyage of Her Majesty's Ship "Challenger," 1873–76.*

"The caves (on Nightingale Island), with the sloping ledges leading up to them, are frequented, as was said, by fur-seals. Four years before the visit of the expedition, 1,400 seals had been killed on the island by one ship's crew. Seals were very much scarcer in 1873, but the island was visited regularly once a-year by the Tristan people, as was also Inaccessible Island. The Germans killed only seven seals at Inaccessible Island during their stay, but the Tristan people killed forty there in December 1872." (Narrative, vol. i, part i, p. 264.)

"From all sides of the precipitous black cliffs cataracts fall over into the sea, and water is found in numerous ponds all over the group. The islands* are frequented by elephant- and fur-seals, although these are not so plentiful as formerly, and as there is no lack of water, there is no danger of shipwrecked mariners dying of starvation. The blubber of the elephant-seal and the skins of penguins, with the adherent fat, furnish the material for fire, and the flesh of the seals and birds, the eggs of the latter, together with the Kerguelen cabbage, form a nourishing diet, on which the sealers residing at times on one or other of the islands have usually lived, and with which they appear to have been contented." (Narrative, vol. i, part i, p. 321.)

"Two of the whaling-schooners met with at the island† killed over seventy fur-seals on one day, and upwards of twenty on another, at some small islands off Howe Island to the north. It is a pity that some discretion is not exercised in killing the animals, as is done in St. Paul Island in Behring Sea in the case of the northern fur-seal. By killing the young males, and selecting certain animals only for killing, the number of seals may even be increased;‡ the sealers in Kerguelen Island kill all they can find." (Narrative, vol. i, part i, p. 355.)

"In 1866, when Her Majesty's ship 'Topaze' called at the island,§ there were only ten inhabitants, and the 'Challenger'‖ found forty or fifty under the control of a Chilean, who paid 200*l.* a-year rent to the Chilean Government, and who had a few men also at Mas-à-Fuera island; he was engaged principally with the hunting of the fur-seals." (Narrative, vol. i, part ii, p. 827.)

"The steam-pinnace left Gray Harbour¶ at 4 A. M. with several naturalists and officers, and joined the ship in the evening at Port Grappler. On the way, landing was effected at several spots, and a number of birds were procured; a very large number of fur-seals (*Arctocephalus*) were seen, and six were shot, the skins and skeletons of which were preserved." (Narrative, vol. i, part ii, p. 865.)

"In the narrative of the voyage it is stated that fur-seals frequented Nightingale Island, one of the Tristan da Cunha group; the Crozet Islands, Kerguelen Island, Juan Fernandez, the Messier Channel, and Elizabeth Island, in the Strait of Magellan. Specimens of eared seals, which did not possess the elongated concave palate

* Crozet Islands, Penguin or Inaccessible Island, visited 1873–74.
† Kerguelen Island.
‡ J. A. Allen.—The eared seals. Bull. Mus. Comp. Zool., vol. ii, pp. 1–88, 1870–71.
§ Juan Fernandez.
‖ Visited by "Challenger," 1875.
¶ Visited by "Challenger," January 1876.

so characteristic of the genus *Otaria* in the sense defined on p. 29, were procured from the Kerguelen group of islands, in the Messier Channel on the west coast of South America, and from Juan Fernandez. They consisted of the following specimens from Kerguelen: two carcases of young fur-seals without the skin, procured from the 'Emma Jane' at Fuller's Harbour, January 1874; two skeletons of fur-seals, also at Fuller's Harbour, which were distinguished from each other as No. 1 and No. 2 (No. 2 having been killed on Swaine Island). From the Messier Channel were obtained the skin and skeleton of a male and the skin and skeleton of a female; also two skeletons of males shot on rocks in January 1876. The specimen from Juan Fernandez was a skin containing the skeleton of a very young animal." (Zoology, vol. xxvi, part lxvii, p. 37.)

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182 *7.—Seals and Sealing in New Zealand.*

Through the kindness of Professor T. J. Parker, F. R. S., of the University of Otago, Dunedin, New Zealand, the subjoined interesting account of the seal fishery in New Zealand, written at his request, has been furnished by Mr. Frederick Chapman. The communication is in the form of a letter addressed to Professor Parker, and is dated from Dunedin, 24th September, 1891:

"I have endeavoured to get some definite information and original opinions to enable you to answer Mr. G. Dawson's letter of the 23rd June, with reference to the extirpation of our seals, but the only person I could think of as old enough to give me first-hand information, yet not too old, has not yet answered my letter. I think, however, that from a general knowledge of the traditions and literature of old New Zealand, and from books at my command, I can give you something to begin with, and I will try and obtain more.

"Doubtless Mr. Dawson has access to a paper on the fur-seal of New Zealand, by J. W. Clarke, in the Proceedings of the Zoological Society for 1875 (p. 650), which is in your Museum library. This paper gives some interesting facts, the verification of which I had previously sought for years. As I know nothing of the seals in Australian waters beyond the fact that they were once numerous in the islands of Bass Strait, I will come to New Zealand. Seals were formerly numerous on our mainland. To get at the numbers taken here early in the century, one would have to make inquiries of old mercantile houses in Sydney, London, and America—the Campbells, Enderbys, &c., if any of them exist. The old Maori traditions constantly refer to seals, which were very numerous in the neighbourhood of this port two centuries ago, and may have been plentiful when the century began. The rocky west coast of this island was, however, the home of numerous seals, and a few are still killed there in quiet places. There was a beautiful colony at the Steeples, close to the Westport lighthouse, but when the Government opened a season for sealing, a few months since, a party went out in a boat from Westport and butchered them. That was already regarded as a past place for sealing when Brunner explored that coast by land in 1846, though Brunner saw a few seals there. It had evidently revived in our time. The coasts of Foveaux Strait and the west coast swarmed with sealers early in this century, and there were some on the west coast about Dusky Sound even earlier. They were shore parties, who bagged the seals in great numbers. Dr. Shortland, who visited Mr. Jones' whaling station at Waikonarti, 20 miles from here, in 1842, frequently refers to the sealing, but rather as a past matter. Our whales were pretty well exterminated by 1850, and had even then long been scarce, and a writer ten years before that repeats the protests of the French whalers, who were numerous here, against the disastrous practice of the Sydney people, who maintained shore stations, and so utterly destroyed the whales. It is difficult to realize that in 1843 there were fourteen whale ships lying in this port, with all their boats out daily, and four shore stations in active operation, in face of the fact that during the nineteen years I have lived here only one whale has been killed. I have digressed from the seals, but the fact of the whale explains, and more than explains, that of the seal.

"Captain Turnbull, whose book I have never seen, writes in 1810 of 46,000 seals taken at the Fiji Islands. We don't hear of seals there now. It is quite possible that that locality was mentioned to lead others off the scent. At Macquarie Island the discoverers killed in one season 80,000 fur-seals! Our friend Professor Scott visited it ten years ago, and was told the fur-seal never came there. Ever since then it has been occupied by sea-elephant hunters, but no fur-seal ever visits them. This suggests that the fur-seals do not come up from the Antarctic ice, as the sea elephant do. Campbell Island was repeatedly occupied by sealing parties, some of whose graves are seen there. Antipodes Island was occupied in 1824, and I do not know how much earlier or later. Captain Fairchild, of the New Zealand Government steamer, in four or five visits has never seen a seal there. The Auckland Islands, the

largest group, have been visited repeatedly during the last eighty years, and numerous shore parties have lived there. On the Snares, sealers' huts still stand. The coasts of Stewart's Island have yielded large numbers of seals.

"The Rev. Wm. Yate, a missionary, in 1828–35, after describing the enormous number of whales destroyed (black or inshore whales) writes: 'There are also several establishments for the seal fishery on the coast of New Zealand or on the small islands in the vicinity of the coast. A number of sailors are landed and left to kill and skin the seals, many thousands of which are destroyed in the course of a few months.' Earlier than this, in 1815, the Rev. S. Marsden, the first missionary in New Zealand, writes narrating the adventures of the Maori Chief Diraterra and ten Tahitians and ten Europeans who were placed as a sealing party on the Bounty Islands. They suffered great privations, but in a few months, on sixteen rocks with a total area of about 100 acres without vegetation or water, killed and skinned 8,000 seals. This is enough to show you that once these places were densely peopled with seals. The Chatham Islands were another sealing ground, but of them I know very little. All this relates to matters which happened so long ago that sealers are a dead race, while, as you know, whalers who came later or lasted longer are only represented by a very few old men. As for middle-aged natives like myself, we heard in our youth of whales, but not of seals.

"Sealing has been closed for a good many years, before which the Maoris of Riverton used to visit the west coast and get a few, and though poaching never wholly stopped, it did not pay very well. This year a sapient Government has opened a season, and two vessels have been sent to the islands. One reports getting 150 from the Chathams and Bountys, and the other 450 from the Auckland, but there is some underhand work over it, and more may have been got, as the crew are accused of stealing 300 skins. This is by far the largest take for many years, and has, I think, about finished the fur-seal in New Zealand waters.

"I visited five groups of islands last year in the summer, and saw one fur-seal, and from this and other facts concluded that they were very scarce now.

"Now, as to the cause of this, there is but one answer. Reckless killing and disturbance in the rookeries. Mr. Dawson need not trouble himself about pelagic sealing. There is not and never was such a thing in these waters. You could not
183 have it in our wide and angry sea. Calm days are almost unknown where you get south of New Zealand, and I never heard of seals being seen in the open ocean. Certain it is that ocean sealing is and always has been an unknown thing here.

"In December 1887 some very interesting articles appeared in the 'Melbourne Argus' on 'The Sealers at Work,' by a man who was shipwrecked in the 'Derry Castle' at the Auckland Islands, and rescued by seal poachers. I have tried to get these papers, but they are out of print. He describes the *modus operandi*. They carry a long rope and lower one of the party over the cliffs hundreds of feet high. He gets off at the mouth of the cave where the seals lie, and cuts off their retreat. He then proceeds to club them, and send up their skins by the rope. This is done because it is so dangerous to put in a boat on the open coast with a fearful sea running. The whales, so enormously plentiful prior to 1840, are, as I have said, almost extinct. This is due to slaughtering them in the breeding bays, and to the occupation of these bays as shipping ports. The off-shore whale (sperm whale) is still lively, though greatly reduced in numbers. Disturbance, as you know, is as great a destroyer as actual killing. I believe it will pay our Government some day to restore the seal fisheries. It would be interesting to experiment with northern seals, as they might migrate, and so people the islands and coasts, while the facts I have mentioned, and the direct testimony of Captain Fairchild, who assures me that this is the case, seem to show that ours keep very much to the native spot. If I can see Captain Fairchild I will get some further facts from him. I think Filhol could give Mr. Dawson some information, as he told me a great deal about seals when he was here, which I have forgotten.

"This is about all I can tell you at present. Of this I am certain, that unless the American seal fisheries are subjected to some kind of management, they will follow the fate of ours, though it will take longer to effect it in their case."

8.—*Extract from Letter from Baron Nordenskiöld to Dr. Dawson, dated Stockholm, September 2, 1891.*

My personal experience about the higher animal life in the Behring Sea is very limited, and all the information I could collect you will find in Chapters XIV and XV of the second volume of the "Vega Voyage," which work, perhaps, can be useful to you by my references to the older literature, to which I had a fuller access than any of the previous authors on the subject. The collections of invertebrates brought from the Behring Sea and the adjacent part of the Polar Sea by the scientific staff of the "Vega" were very large.

9.—*Observations on Sealing in the Southern Hemisphere in the years 1873–76.*

In addition to the notes contained in the published volumes relating to the "Challenger" expedition, Mr. John Murray has been so kind as to furnish the following information:

"'CHALLENGER' EXPEDITION OFFICE, 45, FREDERICK STREET,
"Edinburgh, September 2, 1891.

"DEAR SIR: I have been from home for some time, otherwise your letter of the 2nd July would have been answered long before this.

"I fear I have very little information to convey with reference to the seal fisheries of the south. All the fur-seals that we procured were killed on land, and it was the habit of the seal-fishers we met thus to capture all their animals. We saw very few seals far from their breeding places. We saw only three or four on the southern ice. All the seal-fishers we encountered in the south were from New London, U.S.A. In our time there were no Australians engaged in the trade. There were immense numbers of sea-elephants killed every year on Long Beach at Herd Island. Men wintered there for the purpose of killing them when they came on shore in the early spring. We saw the sealers kill twenty-four fur-seals one day by landing on Swain's Islands where they were breeding.

"We found that some fur-sealing was done at the Falkland Islands. You could get information as to the present state of the trade by addressing a letter to Mr. Deans, Stanley Harbour, Falklands, or you might address a letter direct to the Governor of the islands.

"Trusting that you will have had a pleasant trip to the west, yours, &c.
(Signed) "JOHN MURRAY."

10.—*Report of Examination of Seal Pup, by Dr. Günther, F. R. S., British Museum.*

The pup fur-seal submitted to my examination was labelled "Found dead on north-east rookery, St. Paul's Island, 5th August, 1891."

1. Its length from end of nose to root of tail 23 inches: umbilical cord closed at its distal end; milk-dentition perfectly grown. Apparent age of animal about 17 days.

2. Fur in perfect order; no signs of external or internal mechanical injury. Body well nourished, with a fair amount of fat in the subcutaneous tissue; no fat about the abdominal organs.

3. Organs of digestion and other abdominal organs healthy. Stomach entirely empty, with the exception of a smooth black pyramidal pebble, size of a small bean, and of two or three very small corroded pebbles; intestine empty, with some slight accumulations of mucus in various parts. The animal could not have taken any sustenance for at least two or three days before its death.

4. The chest had not been opened, consequently partial decomposition had
184 set in before the preservative fluid could act upon the organs. It is therefore difficult to distinguish between pathological signs and post-mortem appearances. But so much is certain, that the lungs were in an inflammatory condition, especially at the base of the right lung. The inflammation extended also some way up the wind-pipe, the mucous membrane of which was covered with a granular deposit in the portion affected.

5. Both the absence of food as well as the condition of the respiratory organs are sufficient to account for the death of the animal; but which of the two was the primary cause preceding the other is impossible to say.

6. A small and thin nematoid worm, from 1 to 1½ inches long, was found in considerable numbers in the lower half of the smaller intestines; one specimen to, perhaps, every 2 inches of intestine. They could not have caused any inconvenience to the animal, and, in fact, there was not the slightest sign of irritation in the mucous membrane.

(Signed) A. GÜNTHER, *M. D.*

BRITISH MUSEUM, *January 26, 1892.*

11.—*Questions in regard to Sheep in the Breeding Season, kindly answered by Sir Samuel Wilson, M. P.*

1. Is it common and easy to make ewes suckle other ewes' lambs?—Yes. It can be effected by putting the skin of the ewe's dead lamb on the lamb she is desired to adopt, or by holding her and getting the lamb to suck her for a few days, when she will take to it as if her own progeny.

2. Is it absolutely certain that lambs always know their own mothers, and never get milk from any other mother unless forced to do so by man?—Ewes always know

their own lambs by smelling them. A ewe will not allow a strange lamb to suck her if she notices it, but sometimes a lamb not her own may come up on the other side while she is suckling her own lamb, and may unnoticed by her suck her for a time.

There are motherless lambs which go about in this way, and manage to live by what they can steal, and the green grass, which they can soon digest, even when a few days old.

Lambs at a very early age do not, I think, know their own mothers, but will run up to any ewe bleating for the lamb, and try to suck her, when the ewe at once knows if it be her own lamb, and if not drives it away. Older lambs know their dams by the voice.

3. Is it usual to lead ewes accidentally deprived of lambs to suckle other lambs, whether one or twins, or having lost their mothers?—Where the breed is valuable, all lambs are "mothered" to ewes that have lost their own, and sometimes one of twins is put to a ewe that has lost her lamb.

Ewes lambing at large in paddocks, however, are left to do as instinct directs, and fewer lambs in proportion are reared than when well cared for.

4. If so, what are the measures adopted?—Putting motherless lambs or one of twins to a ewe which has lost her lamb.

5. How many ewes will one ram serve effectively in the season, and how long does the season last?—Ordinarily one ram is put to fifty ewes running at large in paddocks, but a ram that is well fed, and only allowed to serve a ewe once, may get 200 lambs in a season.

Rams are usually kept with the ewes six or seven weeks.

6. Do the rams eat as much, and the usual food, during the rutting season?—The rams eat as usual when serving the ewes, but fall off in condition owing to running about after the ewes. If fed artificially besides the natural pasture they would, I think, consume more food while serving the ewes than at other times, but this I have not tested.

7. What is the proportion of male to female lambs born?—The proportions are about equal as a rule. In some cases there is a very considerable difference, the causes being imperfectly understood. Old rams put to young ewes are said to produce a much larger proportion of ewe lambs, but I have not endeavoured to alter the proportions of the sexes of the progeny, and cannot speak from experience in this matter.

(Signed) SAMUEL WILSON.

P. S.—80 per cent. is considered a good average increase in merino ewes.

A flock of ewes with careful management may double their numbers every two and a-half years for a considerable time under favourable conditions.

S. W.

12.—*Letter from Earl Brownlow on the subject of Deer in the Breeding Season.*

8, CARLTON HOUSE TERRACE, *London, May 8, 1892.*

DEAR SIR GEORGE: I am very glad to give you any information in my power about the habits of deer in the British Isles both in a wild and tame state. This information I have gained in a great degree from personal observation, but the details of management of tame deer in a park I have partly obtained from my park-keeper, who is a man of very great experience, and has a thorough knowledge of the subject.

The habits of deer differ very little in a tame or wild state.

A stag is in his prime at about 12 years old, and a hind at about 9 years old.

Supposing that the stock in a park consists of 100 deer.

There should be forty stags to sixty hinds. Three stags should be killed each year at 12 years old, leaving a margin of four for loss and accident, and six hinds at 9 years old, leaving a margin of six for loss or accident. From sixty hinds you would probably get from twenty-five to thirty calves each year.

185 The breeding season begins about the 20th September, and lasts till late in October.

During this time the stags eat very little. In a wild state they begin to eat white lichen off the rocks early in October. If you kill a stag then you will find the grass in his stomach mixed with lichen, and later there will be no grass, and only a handful of lichen. In a park where they cannot get lichen they will rush into the water, and suck the green vegetation from the surface. They soon get thin and poor, and when the skin is removed the flesh is red, without fat, with an offensive smell. They are then quite unfit for food. They take no rest, and spend all their time in hunting and keeping together their hinds.

A stag will have with him any number of hinds from two or three to thirty.

At other times of the year the stags and hinds keep separate in small herds, the very young stags keeping with the hinds.

A hind has one calf as a rule, which is born about May.

The stags cast their horns every year, and will eat the old horns if they can get them to supply lime for the growth of the new horn.

Although a great deal might be written on this subject, no other information strikes me which would be likely to be of any assistance to you in your inquiry.

I remain, &c.

(Signed) BROWNLOW.

13.—*Memorandum on the Place of the Fur-Seal in the Classification of Mammalia, by Professor Flower, C. B., F. R. S., Director of the Natural History Departments, British Museum.*

All the animals commonly spoken of as seals are divided into two very distinct groups:

(*a.*) The true seals (*Phocidæ*), distinguished mainly by having no external ears, and by not using their hind limbs when walking on land.

(*b.*) The eared seals (*Otariidæ*), often called sea-lions or sea-bears, which have small external ears, and which, when on land, support themselves and walk on the soles of their hind as well as their fore limbs.

None of the first-named group have the fine under-fur which makes the skin of some of the species of the second group such a valuable article of commerce; it is therefore not necessary to speak further of them in the present Report.

Up to the year 1816 both groups of seals were included under the generic name of *Phoca* (Linnæus), but in that year the eared seals were separated by Péron* from the others, under the name of *Otaria*, a name which zoologists, whose tendencies in questions of nomenclature are conservative, still retain for the whole group.† Others have divided it up into nearly as many genera as there are species, founded on trifling modifications of the teeth and skull and the length of the ears, and thus such names as *Arctocephalus, Callorhinus, Euotaria, Zalophus, Eumetopias, Phocarctos, Halarctus, Neophoca, Arctophoca,* and *Gypsophoca* occur as generic appellations of various members of the family in zoological treatises on the subject.

As the various authors who have made a special study of this group of animals do not agree as to the relative importance of the characters upon which these distinctions are founded, there is much difference of opinion as to the extent and limits of these so-called generic divisions, and consequently as to the name to be applied to many of the species, hence the confusion of nomenclature which is obvious to any one who compares the different monographs and treatises on the natural history of the seals.

Besides the difficulties as to the most appropriate names, there are others which arise from our ignorance of the animals themselves, especially the distinctive characters and geographical distribution of the various species. The number of species is not even accurately determined, as variations due to sex, age, or season have often been mistaken for those due to specific distinctions. Indeed, until more complete materials are collected in our museums, including skins, skeletons, and skulls of animals of both sexes and various ages, and from different and well-recorded localities, a complete zoological monograph of the family will be impossible.

The common practical distinction between "hair-seals" and "fur-seals," or those which, in addition to the stiff, close, hairy covering common to all the group, possess an exceedingly fine dense woolly under-fur, does not coincide with divisions based on other and more important structural characters. Though all true seals (*Phocidæ*) are "hair-seals," some of the *Otariidæ* are "hair-seals," and others "fur-seals." It is the skins of the latter, when dressed and deprived of the longer, harsh, outer hairs, which constitute the "seal-skins" of commerce so much valued for wearing apparel.

In habits all the *Otariidæ*, whether hair-seals or fur-seals, appear to be much alike. As might be inferred from their power of walking on all fours, they are better capable of locomotion on shore, and range inland to greater distances than the true seals at the breeding season, though even then they are always obliged to return to the water to seek their food, and the rest of the year is mainly spent in the open sea far away from land. They are gregarious and polygamous, and the adult males are usually much larger than the females. They are widely distributed, especially in the tem-

* "Voyage aux Terres Australes," vol. ii, p. 37.

† Flower and Lydekker: "Introduction to the History of Mammals, Living and Extinct, 1891," p. 593.

perate regions of both hemispheres, though their entire absence from the North Atlantic is a noteworthy fact. No *Otaria* has ever been found either on the European, African, or American shores of that ocean north of the Equator.

So far as is yet known, each species has a definite and limited area of geographical distribution beyond which it never wanders. In this respect they follow an almost universal law of Nature, applicable to both animals and plants, although the causes of this limitation are, in most cases, extremely obscure.

186 The chances of accurate observations upon the movements of marine animals are so small that we are still and probably shall long remain in considerable ignorance as to the exact pelagic range of many of the species, but as they always spend some months on shore every year during the breeding season, and as the number of localities suitable for this purpose is limited, the coast range of each species should be ascertained with a tolerable amount of precision when a sufficient number of reliable data are obtainable. This cannot be said to be the case at present, owing to the difficulty of discriminating the species from the casual external observations of uninstructed seamen upon whose information we have mainly to rely.

These remarks apply chiefly to the species inhabiting the Southern Hemisphere. With regard to those of the North Pacific, our knowledge is in a more satisfactory state.

It is now ascertained with tolerable certainty that there are in this region three, and only three, very distinct species, and there is no evidence that either of these species is, or has ever been, found elsewhere.

These are—

1. Steller's Sea-Lion (*Otaria stelleri* = *Eumetopias stelleri* of some authors), the largest of the whole group; found on the Pacific coast of North America from California to Alaska; Pacific coast of Asia from Japan northwards into the Behring Sea.

2. The Californian Sea-Lion (*Otaria californiana* = *Zalophus californiana* = *Otaria gillespii*) inhabiting the coasts of California and Japan, but not entering the Behring Sea.

These two are hair-seals; the next is a fur-seal.

3. The Northern Fur-Seal or Sea-Bear (*Otaria ursina* = *Callorhinus ursinus*) inhabits the North Pacific from California and Japan northwards into the Behring Sea.

The main character by which this animal is distinguished from all other *Otariidæ*, and which has been considered by Gray and most later writers to entitle it to generic distinction, is the form of the fore part of the skull, which is short, broad, and high, being as it were truncated in front, instead of low and narrow as in all other species. By this general aspect the skull can be distinguished at once from that of any other. The molar teeth are six above and five below on each side. In the two other North Pacific species they are five above and five below. The external characters need not be entered into here, as they have been abundantly and minutely described elsewhere.*

The distinctive characters and geographical distribution of the species of *Otaria* inhabiting the seas and coasts south of the Equator, and met with either now or formerly in all suitable localities round the whole circumference of the globe, are, as stated above, less accurately determined, nor is this the place to attempt to unravel this purely zoological problem, but the following may be mentioned as best established.

4. The Southern Sea-Lion (*Otaria jubata*), formerly abundant on the Falkland Islands and the coasts of Patagonia and Chile, extending as far north as the Galapagos Islands; an animal nearly as large as the Northern or Steller's Sea-lion, but easily distinguished from it by the form of the skull, especially of the bones of the palate. This is not a fur-seal.

5. The South American Fur-Seal (*Otaria australis* = *Otaria falklandica* = *Arctocephalus australis* and *falklandicus*), South American coasts, from Lobos Islands near the mouth of the Rio de la Plata on the east, to the Galapagos on the west.

6. The South African Fur-Seal (*Otaria pusilla* = *Arctocephalus antarcticus*), from the Cape of Good Hope.

7. The Australian Fur-Seal (*Otaria forsteri* = *Arctocephalus cinereus*) of Australia, New Zealand, Auckland Islands, &c.

8. The Australian Sea-Bear (*Otaria lobata* = *Zalophus lobatus*). A hair-seal from the Australian coasts.

9. Hooker's Sea-Lion (*Otaria hookeri* = *Arctocephalus hookeri*). Auckland Islands. Also a hair-seal.

W. H. F.

May 1892.

* See especially the excellent "Monograph on North American Pinnipeds," by J. A. Allen, Washington, 1880.

14.—*Letter from Captain David Gray, Peterhead.*

PETERHEAD, *June 3, 1892.*

SIR: I had the honour yesterday to receive your communication, asking for information regarding the hair-seal fishing in the North Atlantic.

The Jan-Mayen Convention provides that no seals are to be killed within the limits detailed in the Act, namely, from latitude 68 N. to latitude 75 N., and from the meridian of Greenwich west to the Greenland shore. The penalty for killing a seal before the 3rd April is 500*l.*, payable to the informant.

There are no police required to enforce the close time; each ship's crew looks after their neighbours, so that the close time in the Greenland seas has been very strictly kept.

The effect of the close time on the seals is to protect them during the time they are bringing forth their young, and gives them a few days' quietness to nurse them, and is beneficial in so far that it prevents the old seals being killed before the young are born, and also allows a proportion of mother seals to escape to continue the species; beyond this the close time does not go. The young broods were very often clean swept up, so that not one escaped.

The Newfoundland seal fishery is conducted in a different way; the St. John's people, having the control of the fishing themselves, do not allow the ships to leave before a date. This year the 15th March was the day fixed for the steamers
187 leaving. Sailing-ships are allowed to sail eight days sooner. The Newfoundlanders are becoming more strict every year; the sailing day was five days later this season than last, and they have to stop fishing on the 20th April.

To sum up, the position is this: at Greenland the close time will prevent the seals being exterminated, but it will not allow them to increase.

At Newfoundland their present mode of fishing means, in a few years, extermination.

I have, &c.

(Signed) DAVID GRAY.

Sir GEORGE BADEN-POWELL, M. P.,
Foreign Office, London, S.W.

15.—*Mr. W. Palmer on the killing of Seals upon the Pribyloff Islands.*

The following are extracts from a paper read by Mr. William Palmer, Taxidermist to the Smithsonian Institution, before the Biological Society of Washington, in October 1891. Mr. Palmer visited the Pribyloff Islands in an official capacty in 1890. The first part of the paper from which these extracts are made gives some general account of the habits of the seal, together with remarks on pelagic sealing, with which subject, however, Mr. Palmer was not personally familiar. The portion of the paper quoted below is that giving the result of Mr. Palmer's own observations made on the breeding islands, and is, therefore, of value as a record of the conclusions thus arrived at by him:

Natural History.

FATE OF THE FUR-SEAL IN AMERICA.

[Read before the Biological Society of Washington, District of Columbia, October 17, and illustrated by Lantern Slides.]

The present condition of the Alaskan fur-seal islands is but another illustration of the fact that the ignorance, avarice, and stupidity of man have succeeded in reducing an overwhelming abundance of animal life, that by careful and considerate treatment would for ever have been a source of immense wealth, to such a condition that it becomes a question of great moment to devise means to prevent its extermination, and adopt measures to restore its former abundance.

* * * * * * * *

But pelagic seal fishing is not the only cause of the decrease of seal life on the Pribyloffs.

Probably, an equal cause is the unnatural method of driving seals that has been followed on the islands since the first seal was captured.

The mere killing of seals as conducted on the islands is as near perfection as it is possible to get it. They are quickly dispatched, and without pain. One soon recognizes, as in the killing of sheep, that in the quickness and neatness of the method lies its success, all things considered.

But the driving is a totally different matter. I doubt if any one can look upon the painful exertions of this dense crowding mass, and not think that somewhere and somehow there is great room for improvement. It is conducted now as it always has been: no thought or attention is given to it, and, with but one exception, no other method has been suggested, or even thought necessary.

several seasons on the Commander Islands, assures me that, instead of decreasing, the fur-seals there are actually increasing in numbers. A comparison of the Russian ideas of seal management with our own will readily show the reason. The necessity for great care in the driving and management of the drive seems to be a fixed fact in the minds of the Russian officials and natives of the Commander Islands, while on the Pribyloff Islands not the slightest interest is taken in the matter. On the Russian side the natives are firm in the belief that their interests lie in the proper care of the seals; consequently, when a drive is made, it is composed of many small drives carefully selected and slowly driven, so that the large and small seals unfit for killing are gradually weeded out, and when the drive reaches the killing grounds it is composed almost entirely of killable seals.

On the American side, on the contrary, the seals are driven as fast as possible, the only ones weeded out being those too weak to go further, while of those rounded up on the killing ground by far the greater number are allowed to escape. Out of a drive of 1,103 counted by me only 120 were killed; the rest were released. On the Russian side, it is a settled fact that the islands and seals belong to the Russian Government, and that the Company taking the skins has only certain restricted rights for that purpose; but on the American side it seems to be a settled fact, at least in the minds of the Company's people, that they own the seals and the islands, while the duty of the Government is to collect the tax and appoint Agents to subserve the interests of the Company only. The natives are utterly dependent on the seal Company for their support, and while having a very vague idea that somehow the Government is a big thing, they naturally look to the Company for everything affecting their interests.

Sealers have no doubt about the fate that would be their lot if caught poaching on the Commander Islands, or within 3 miles of their shores, and accordingly have given them a wide berth; but they have heretofore done as they pleased about the Pribyloff Islands, and even on the rookeries. In the absence of the revenue-cutters the islands are utterly defenceless, and liable at any time to be raided.

I have only touched lightly upon several questions of the sealing industry, and have by no means exhausted the subject; but enough has been said, I think, to show that if an industry, which eighteen month ago was expected to pay the Government a net profit of over 2,000 per cent., and is, besides, a great natural exhibit, the only one of the kind America can produce, is to be saved, reform is necessary. For twenty years the fur-seal has been the spoil of politics and the victim of the poacher. Inexperience on the one hand, and avarice on the other, have well nigh ruined the industry in American waters.

There are then two chief causes of the decrease of seal life on the Pribyloff Islands—poaching in Behring Sea, and the driving and culling of the seals on the islands. The remedy is simple:

1. No seals should be killed by any one at any time in the waters of Behring Sea.
2. All seals driven on the islands should be killed; none should be driven and again allowed to enter the sea.

These remedies are not new. Nearly twenty years ago Captain Daniel Webster, whose knowledge and experience of sealing are second to none, said, pointing to the drive, "Every one of them should be killed, none should be allowed to return to the water," and gave reasons which, while unsupported by evidence then, and which, in view of the immense abundance of seal life, seemed absurd at the time, are now beginning to be accepted as true.

There should also be a close time for at least five years to allow the rookeries to be replenished, and then by careful management by a bureau and employés of the Government, trained in the knowledge and care of animal life, a rich and profitable industry will be saved.

(Signed) WILLIAM PALMER.

UNITED STATES' NATIONAL MUSEUM, *Washington, D. C.*

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190 16.—*Extract from the Melbourne "Argus," December 17, 1887, referred to by Mr. F. Chapman.*

SEALERS AT WORK.

[By James M'Ghie, survivor from the wreck of the "Derry Castle."]

When I wrote the account of "Life on the Auckland Islands," which has just appeared in "The Argus," I purposely said nothing about the Awarua poaching seals when she visited Port Ross, and picked us up while we were cast away there. It did not become me to tell tales against my benefactor, but inasmuch as the captain's admission of the poaching has been published in all the newspapers, I may as well describe how seal hunting is done. The work is the most dangerous and

arduous that men can do. It is besides so ill-paid, that few but Maoris will undergo the risk and the hardship on the terms which custom has assigned to the enterprise. The owner of the sealing-vessel gets nearly all the benefit if many seals are taken, and if the trip is unsuccessful—which is very seldom the case, owing to the surprising boldness and endurance of the Maoris—he loses comparatively little. The Maoris agree to ration themselves, to work the vessel, and to catch the seals at so much per skin, less the cost of the provisions put on board the vessel upon the requisition of the crew at the time of commencing the cruize. If only enough skins are secured to pay for the stores the Maoris get nothing for their work, while the owner has the profit of the skins at the price they are worth in the London market to recoup him for the use of the vessel and for paying the captain's wages. The rule, I believe, is that the sealers have far worse than a sailor's life at less than a sailor's pay, but year after year crews are found ready to engage in the chase. The men are engaged by a Headman, to whom alone they are subject, and who directs the sealing operations. The crew (through their Chief) determine what places shall be visited, and when they shall return home. The captain has simply to navigate the vessel from one haunt of the seals—called a "rookery"—to another, in order that the men who are on shares may have the best opportunity of doing well as far as they are inclined out of the trip.

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We agreed to go with the sealers, and forthwith all hands set about preparing for the expedition, repairing the whale-boat, cutting seal-clubs, making bullets, and packing up. Then a start was made for a "whig rookery" at Enderby Island. A "rookery" is a home of seals in the interstices of rocks near the water's edge. What sealers know as a "whig rookery" is one which is only occasionally the haunt of adult seals, and is not a breeding place. The "take" depends upon whether the seals happen to be "at home" or not. They were not "at home" on this occasion.

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The next "rookery" chosen for a visit was at North-west Cape, 7 miles from Port Ross, and across mountains over 1,000 feet high. We found the track blocked up with snow, so while we were waiting for the snow to melt on the hills hunting excursions were made, and three wild pigs were killed.

The sealer is armed with a club, which is a stick with a hook at one end. The club is used to stun the seals by striking them on the nose at close quarters, and the hook serves to bring to a halt seals which are escaping from their holes, or rookeries, into the sea when they are attacked by the hunters. To reach the rookeries, which are on the face of steep cliffs, invariably on the weather side of the islands, the sealers have to travel over the mountains from the sheltered side, where their vessel lies at anchor. These journeys, which are made in winter while the snow is falling heavily, and over almost impassable country, are toilsome and exhausting in the extreme. The men can carry little food or blankets in addition to the equipment for circumventing the seals, and half starved, and without any shelter beyond what the rocks afford, they for several days pursue the seals until all the prey is either killed or driven away. But it is in descending the cliffs to reach the rookeries that the most dangerous part of the work is done. Sometimes there is a sheer descent of 1,000 feet to the sea, on the edge of which the seals make their home. The men are let down one after another by their companions, some of whom remain above to haul up their comrades and the skins when the hunt is over. When the scene of action is reached the boots are replaced with a sort of plaited slipper, made by the Maoris, and which gives a better foothold on the slippery rocks when leaping about after the escaping seals. The rookeries are formed by masses of rock falling from the cliffs. In time they get covered over with earth, so as to form a sort of roof. It is only in these places that the fur-seal, which is the valuable article of commerce, is found. The hair-seal is of no value, as the hide is too oily to tan into ordinary leather. The seals go into the rookeries to breed and to sleep after a spell at sea, and the hunters have to creep into the holes and crevices between the rocks to get them. The seal will fight hard when put to it. The old seals are mostly spared, as their fur is often torn from fighting, or worn off by rubbing against the rocks, and they are left to multiply the species. When an old seal is met with the hunter lies perfectly flat, and allows the animal to creep over him. Sometimes the seals get so far back in the rocks that a man cannot follow them, in which case they are pulled out to a more open space by means of the hook and clubbed. While the hunters are raiding the interior of the rookeries, some of the party stay outside to intercept any that may try to escape, like fox terriers watching the holes of a warren till the rabbits bolt. After knocking all the seals on the nose and sticking them in the first onslaught, the hunters proceed to skin the animals. The carcasses are thrown into the water. If they were left on the rocks the seals would avoid the place for a considerable time.

The North-west Rookery, which, as I have said, was one of the first visited by the party, can only be reached by crossing a "razor-back," or conical-shaped causeway, which comes to a sharp point with the sea, 700 feet below, on both sides. Some

191 of the men walked it, but others of less iron nerve crossed astraddle. The danger is increased owing to the friable nature of the soil, which slips from under the feet. The 7 miles walk to the rookery and back to Port Ross is one of the most severe on the island. A fog came on, and the party lost their way among the hills. They divided into pairs, and some did not get back for hours after the others.

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A rough trip was made in the whale-boat to the Government depôt at Carnley Harbour, in the hope that some boots would be obtained for our party, who much needed them, but there were no boots there; but we got some clothes.

A start was made across the island next morning to the Red Rock Rookery on the western side. Our longest rope (1,000 feet) required three men to carry it, each having a coil on his shoulder, with a slack piece between the bearers. The total descent to the rookery was 800 feet, and it was undertaken in two lengths, the first landing-place being at a drop of about 500 feet. The first man who (tied by the waist) is let down runs great risk from dislodging loose stones, which may fall upon his head. As he goes down, a look-out man, on a projecting point, gives the signal to "stop" or to "lower away" from time to time. When five men got on to the first ledge, they helped each other to get to the bottom, while communication was maintained with those overhead by means of notes stuck in the strand of the rope, which was hauled up on a signal being given. If firewood is to be got it is thrown down on to the rocks, but at the rookery I am speaking of the shore was lined with plenty of fuel from the wreck of the "Derry Castle."

After the sealing party had descended, their comrades made another trip back to the boat for more requisites for camping as comfortably as possible, as this place is the head-quarters for attacking all the rookeries in the locality, all of which are within a radius of 15 miles.

On the fourth day the hunters reappeared, and signified to those who had kept a constant watch on their movements to see if they wanted anything sent down, that the hunting was over. They sent up forty-two skins, which was more than they expected, and when the whole of the party mustered again on the top of the mountain, they were in very good spirits accordingly.

The next rookery chosen for a raid was called "The Point," because the lowering is down from the end of a promontory. The landing-place is a narrow piece of sward sloping towards the sea, which is about 100 yards lower down.

The "Cave" Rookery, so designated because the seals are found in a natural cave, and the Nineteen Rookery, whose title indicates the number of skins taken when it was first visited. These were assailed in turn, and while waiting for snow, which put a stop to further active operations, to melt, the skins were duly salted and rolled up in the peculiar manner which prevents the inside of the pelt touching and injuring the fur.

The next and last rookery visited was of a different nature to all the others. It is "The Swinger," because the sealers have to swing 80 yards across a chasm, through which the sea surges with great fury, to get to where the seals are. The cliff is close on 1,000 feet high, and overhangs the sea. The art of getting safely across the chasm is to place the loop for the foothold in the rope at exactly the proper length for the leap, so that you will strike the landing-place, instead of being dashed by the momentum of the swing against the rocks if the loop is too long, or swing fruitlessly back if it is too short. Only a few skins were got, and the party were greatly disappointed after all their risk and labour. The total take of skins was 178.

A start was made to return to the vessel. Again heavy snow fell, and it was not possible to leave Norman Inlet for two days, but finally the schooner was reached.

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On arriving at the boat from Norman Inlet the question was debated whether we should proceed to the Campbell Islands and prolong the trip at least two months, or close it at once and get back home. Captain Drew was in favour of coming away, chiefly because the young seal-skins, which were the greater portion of the take, were not properly "primed" by age and salt water to be of the full value.

17.—*Extracts from Pamphlet by Mr. A. W. Scott on the Fur-seals of the Southern Hemisphere, 1873.*

In "Mammalia, Recent and Extinct," published in Sydney by the Government of New South Wales, Mr. A. W. Scott writes as follows:

"I have endeavoured . . . , by devoting as much space as my limits would permit, to the consideration of the animals whose products are of such commercial value to man, and whose extinction would so seriously affect his interests, to point out the pressing necessity that exists for devising the means of protection for the fur-seals and the sperm and right whales of the Southern Ocean.

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"The islands of the Southern Seas, now lying barren and waste, are not only numerous, but admirably suited for the production and management of these valuable animals, and need only the simple Regulations enforced by the American Legislature to resuscitate the present state of decay of a once remunerative trade, and to bring into full vigour another important export to the many we already possess.

"A detailed account of the habits of the fur-seal of the Auckland Islands has recently been given by Mr. Musgrave" (narrative of the wreck of the "Grafton," Melbourne, 1865) "which he acquired during a compulsory residence in their midst of nearly twenty months. Of the females, he relates that 'their nose resembles that of a dog, but is somewhat broader; their scent appears to be very acute. The eyes are large, of a green colour, watery, and lustreless. When on shore they appear to be constantly weeping.

"'In the latter part of December, and during the whole of January, they
192 are on shore a great deal, and go wandering separately through the bush, and into the long grass on the sides of the mountains above the bush, constantly bellowing out in the most dismal manner. They are undoubtedly looking out for a place suitable for calving in. I have known them go to a distance of more than a mile from the water for this purpose.

"'Females begin to breed when 2 years old, and carry their calves eleven months, and suckle them for about three months.

"'Before they have their calves the cows lie sometimes in small mobs (from twelve to twenty), as well as while giving suck, and there are generally one or two bulls in each mob. The cows are evidently by far the most numerous.'

"Of the habits of the very young, he says:

"'It might be supposed that these animals, even when young, would readily go into the water—that being one of their natural instincts—but, strange to say, such is not the case; it is only with the greatest difficulty, and a wonderful display of patience, that the mother succeeds in getting her young in for the first time. I have known a cow to be three days getting her calf down half-a-mile, and into the water; and, what is most surprising of all, it cannot swim when it is in the water. This is a most amusing fact. The mother gets it on her back, and swims along very gently on the top of the water, but the poor little thing is bleating all the while, and continually falling from its slippery position, when it will splutter about in the water precisely like a little boy who gets beyond his depth and cannot swim. Then the mother gets beneath it, and it again gets on her back. Thus they go on, the mother frequently giving an angry bellow, the young one constantly bleating and crying, frequently falling off, spluttering and getting on again, very often getting a slap from the flipper of the mother, and sometimes she gives it a very cruel bite. The poor little animals are very often seen with their skins pierced and lacerated in the most frightful manner. In this manner they go on until they have made their passage to whatever place she wishes to take her young one to.'

"The males are described thus:

"'One of a medium size will measure about 6 feet from nose to tail, and about 6 or 7 feet in circumference, and weigh about 5 cwt. They by far exceed these dimensions. The fur and skin are superior to those of the female, being much thicker. On the neck and shoulders he has a thicker, longer, and much coarser coat of fur, which may be almost termed bristles; it is from 3 to 4 inches long, and can be ruffled up and made to stand erect at will, which is always done when they attack each other on shore or are surprised, sitting as a dog would do, with their head erect, and looking towards the object of their surprise, and in this attitude they have all the appearance of a lion. They begin to come into the bays in the month of October and remain until the latter end of February, each one selecting and taking up his own particular beat in a great measure; but sometimes there are several about the same place, in which case they fight most furiously, never coming in contact with each other (either in or out of the water) without engaging in the most desperate combat, tearing large pieces of skin and flesh from each other; their skins are always full of wounds and scars, which, however, appear to heal very quickly.

"'At this place we saw hundreds of seals; both the shores and the water were literally swarming with them, both the tiger and black seal, but in general the tiger seals keep one side of the harbour, and the black seals, which are much the largest, the other side, but in one instance we saw a black and a tiger seal fighting.' . . .

"Mr. Morris, of Sydney, for many years a sealer by profession, in addition to the information already quoted in p. 15, has kindly furnished me with the following interesting particulars of the history of the southern fur-seal fishery and the habits of the animal, which have the advantage of being derived from his own personal experience.

"From him I learned the following particulars:

"'The females in September come on shore to pup, and remain until about March. The pups are born black, but soon change to grey or silvery grey. The herd then go to sea for the remaining portion of the year, returning again in September with regularity.

"'During this absence in the sea the male pups have changed from the grey to a light brown colour, while the females remain unaltered.

"'In New South Wales the sealing trade was at its height from 1810 to 1820, the first systematic promoters of which were the Sydney firms of Cable, Lord, and Underwood; Rilie and Jones; Birnie; and Hook and Campbell. The vessels employed by them were manned by crews of from twenty-five to twenty-eight men each, and were fitted out for a cruize of twelve months.

"'The mode of capture adopted was: The men selected for the shore party would number from six to eighteen, this being regulated by the more or less numerous gathering of seals seen in the rookery. These men always land well to leeward, as the scent of the animal is very keen, and cautiously keep along the edge of the water in order to cut off the possibility of retreat; then when abreast of the mob they approach the seals and drive them up the beach to some convenient spot, as a small nook or naturally formed inclosure; this accomplished, one or two men go in to the attack, while the others remain engaged in preventing outbreaks. As soon as a sufficient number have been slain to erect a wall of the dead, then all hands rush in to the general massacre.'"

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193 APPENDIX (E).

SEAL PRESERVATION REGULATIONS AND ORDINANCES.

Falkland Islands. | Japan.
Cape of Good Hope. | Newfoundland.
Greenland Seas.

FALKLAND ISLANDS.

[By his Excellency Thomas Kerr, Governor.]

No. 4, 1881.

An Ordinance to provide for the establishment of a Close Time in the Seal Fishery of the Falkland Islands and their Dependencies and the Seas adjacent thereto.

Whereas the seal fishery of these islands, which was at one time a source of profit and advantage to the colonists, has been exhausted by indiscriminate and wasteful fishing, and it is desirable to revive and protect this industry by the establishment of a close time during which it shall be unlawful to kill or capture seals within the limits of this Colony and its dependencies.

Be it therefore enacted by the Governor of the Falkland Islands and their dependencies, with the advice and consent of the Legislative Council thereof, as follows:

Close time for seal fishery, and penalties for breach.

1. No person shall kill or capture, or attempt to kill or capture, any seal within the limits of this Colony and its dependencies, between the days hereinafter mentioned (which interval is hereinafter referred to as the close season), that is to say, between the 1st day of October and the 1st day of April following, both inclusive, and any person acting in contravention of this section shall forfeit any seals killed or captured by him, and shall, in addition thereto, incur a penalty not exceeding 100*l.*, and a further penalty of 5*l.* in respect of every seal so killed or captured.

Liability of owner and master of ship.

2. Any owner or master, or other person in charge of any ship or vessel, who shall permit such ship or vessel to be employed in killing or capturing seals, or who shall permit any person belonging to such ship or vessel to be employed in killing or capturing as aforesaid during the close season, shall forfeit any seals so killed or captured, and, in addition thereto, shall be liable to a penalty not exceeding 300*l.* for each offence.

Prosecution of offences.

3. Every offence under this Ordinance may be prosecuted, and every penalty under this Ordinance may be recovered, before the Police Magistrate or any two Justices of the Peace in a summary manner, or by action in the Supreme Court of this Colony, together with full costs of suit: Provided that the penalty imposed by the Police Magistrate or two Justices shall not exceed 100*l.*, exclusive of costs.

One-half of every penalty recovered under this Ordinance shall be paid to the person who prosecuted the offence or sued for such penalty.

All fines, forfeitures, and penalties recovered under this Ordinance where not otherwise hereinbefore provided, shall be to Her Majesty, her heirs and successors, and shall be paid to the Treasurer for the use of the Government of this Colony.

For all purposes of and incidental to the trial and punishment of any person accused of any offence under this Ordinance, and the proceedings and matters preliminary and incidental to and consequential on his trial and punishment, and for all purposes of and incidental to the jurisdiction of any Court, or of any constable or officer with reference to such offence, the offence shall be deemed to have been committed either in the place in which it was actually committed, or in any place in which the offender may for the time being be found.

Liability of ship to penalty.

4. Where the owner or master of a ship or vessel is adjudged to pay a penalty for an offence under this Ordinance, the Court may, in addition to any other power they may have for the purpose of compelling payment of such penalty, direct the same to be levied by distress or arrestment, and sale of the said ship or vessel and her tackle.

Definition of "seal."

5. In this Ordinance the expression "seal" means the "fur-seal," the "sea-otter," the "hair-seal," the "sea-elephant," the "sea-leopard," and the "sea-dog," and includes any animal of the seal kind which may be found within the limits of this Colony and its dependencies.

Short title.

6. This Ordinance may be cited as "The Seal Fishery Ordinance, 1881."

[SEAL.] (Signed) T. KERR, *Governor.*

Passed the Legislative Council this 27th day of December, 1881.

(Signed) JOHN WRIGHT COLLINS,
Clerk to the Council.

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194 CAPE OF GOOD HOPE.

Cape Government Notice.

SEAL ISLAND.

His Excellency the Governor, having been pleased to decide that the seal island in Mossel Bay shall not be granted on lease for the present, hereby prohibits all persons from disturbing the seals on the said island, and warns them from trespassing there after this notice on pain of prosecution.

By Command of his Excellency the Governor,

(Signed) JOHN MONTAGUE,
Secretary to Government.

COLONIAL OFFICE,
Cape of Good Hope, April 12, 1844.

[TASMANIA. See p. 158.]

JAPAN.

Regulations for the Protection of the Fur-Seal Fishery issued by the Japanese Government in October 1878.

Article 1. In view of protecting seal-hunting and checking foreign poachers, a vessel of foreign type shall be commissioned to cruize in the neighbourhood of Itrup. "Chishimamaru" shall be commissioned for this purpose for the time being.

Art. 2. The mode of killing shall mainly be by clubbing, and the use of guns shall be avoided as much as possible.

Art. 3. Young seals shall be spared as much as possible.

Art. 4. The number of seals to be caught within 1 ri of coast-line shall not exceed forty-five per annum.

Art. 5. Between the months of May and November the killing of seals within 1 ri of coast-line is prohibited.

Art. 6. Any person who catches wounded or crippled seals washed ashore, even within the prohibition limit, shall be paid in money or in kind according to the quality of the skin.

Art. 7. To prevent the decrease of seals by careless chasing and wanton killing, special care shall always be taken, and the preventive method shall be established.

Art. 8. The number of seals taken will be inspected, and their skins shall fix the proof of their ages.

Art. 9. The covering and breeding seasons, &c., shall be carefully ascertained by practical observations.

Art. 10. Practical observations and investigations shall be made as to the truth of the seals losing or changing the colour of their fur according to different seasons.

Art. 11. An actual investigation shall be made as to how many seals can be caught annually if the use of guns be discontinued, and clubs and bows and arrows be adopted instead.

Art. 12. While out hunting, if anything occurs likely to form an object for future investigation, a minute record shall be kept.

Art. 13. While the present Regulations shall be strictly obeyed by all those who are responsible for seal-hunting, they can address themselves to the authorities to effect required amendments in case practical inconveniences shall have been experienced.

Seal and Otter Catching.

We hereby give our sanction to the Regulations for catching seals and sea-otters, and for the sale and importation of their raw skins, and order the same to be promulgated.

[His Imperial Majesty's Sign-Manual.]

[Privy Seal.]

The 16th day of the 12th month, 19th year of Meiji (1886).

Countersigned by Count ITO HIROBUMI,
Minister President of the Cabinet.
Count YAMAGATA ARITOMO,
Minister of State for Home Affairs.
Count MATSUKATA MASAYOSHI,
Minister of State for Finance.
Count YAMAGATA ARITOMO,
Minister of State for Agriculture and Commerce.

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195 *Imperial Ordinance No. 80.*

REGULATIONS FOR CATCHING SEALS AND SEA-OTTERS, AND FOR THE SALE AND IMPORTATION OF THEIR RAW SKINS.

Article 1. Persons who have obtained the special permission of the Minister of State for Agriculture and Commerce, in accordance with the second paragraph of Decree No. 16 of the 17th year of Meiji, may engage in catching seals and sea-otters during the term, and within the limits of the places, specified for the purpose by the Hokkaido Local Government.

Every person catching seals and sea-otters shall at all times carry a certificate of such permission, and whenever, whether at sea or on shore, any officer supervising seal and sea-otter catching, or any police officer, demands to inspect the certificate, the same shall be immediately produced.

Art. 2. Any person engaging in catching seals and sea-otters shall, on arrival in Hokkaido, report the name and tonnage of the vessel and the names of her crew to an officer designated by the Hokkaido Local Government Office for that purpose, and shall at all times exhibit, on the mast or in some other conspicuous position in the vessel, a signal specially adopted by the Hokkaido Local Government Office for vessels engaged in catching seals and sea-otters.

Art. 3. Any person desiring to sell the raw skins of seals and sea-otters shall produce the same to the officer mentioned in Article 2 hereof, and shall have the seal (a brand may be used instead of a seal) of the said officer stamped thereon. No person shall be permitted to sell skins not bearing such stamp.

Art. 4. Whenever it is found that any person is importing the skins of seals and sea-otters not stamped by the officer, as provided in the preceding Article, into any port of the Empire, or is staying in any port of the Empire with such skins laden on board a vessel, or is selling, or attempting to sell, such skins in the market, the Customs or police officers shall seize the same, and shall immediately make complaint to the competent authorities.

But the raw skins of seals and sea-otters caught within the territory of Russia or of the United States of America, with the permission of the Governments of those countries respectively, may be imported into the Empire, provided the owner or master of the vessel first produces a certificate issued by a competent authority of Russia or the United States, or by a Russian or United States Consul residing in Japan.

Details of Procedure to carry out the Regulations controlling the Seal and Sea-Otter Hunting, May 10, 1888.

Article 1. The open season for seal and sea-otter hunting shall be from the 15th April to the 31st October in each year.

Art. 2. The area of hunting shall be all the islands situated eastward of Itrup, and southward of Shimshu, of the Kuriles, and it will be divided into three sections, and every year only one of these sections shall be opened for hunting.

The first section includes seven islands, *i. e.*, Itrup, Chirihoi, Butettchelboa [?], Broughton, Raikoké, Mushir, and Chirinkotan.

The second section includes six islands, *i. e.*, Shimshir, Shiritoi, Ushishir, Sletonepa [?], Rashua, and Matsua.

The third section includes twelve islands, *i. e.*, Shannekotan, Yekkerma [?], Karreukotan, Onnekotan, Anos, Makarushi, Shurenwa [?], Paramushir, Holt, Cockscar, Araito, and Shimshu.

Art. 3. When a boat is going out for hunting, her name, tonnage, and the names of the crew shall be reported for inspection to the branch office of seal and sea-otter hunting superintending authorities, either at Nemuro, in the county of Nemuro, or at Shikotan, in the county of Chishima.

Art. 4. When the branch office of seal and sea-otter hunting superintending authorities find the report mentioned in Article 3 in due form on inspection, it will give to the boat a flag hereinafter shown.

Art. 5. Any person who wishes to export and sell the raw hides of his catch shall produce them to the Shikotan branch of the seal and sea-otter hunting superintending authorities, and shall have them stamped.

NEWFOUNDLAND.

In reply to an inquiry as to the Regulations for the protection of the hair-seal fishery in Newfoundland, information to the following effect was kindly furnished by Sir Terence O'Brien, K. C. M. G., the Governor of that Colony.

The accompanying Acts will furnish the whole legislation on the matter.

The Regulations extend to all vessels under the British flag, there being no foreign vessels engaged in the fishery.

The Regulations are acknowledged to be effectual, and were much needed for the preservation of the seals.

The means taken to enforce the Regulations will be found in the Acts above mentioned, which, it may be added, have no force in extra-territorial waters as such.

Penalty; IV. The master, owner, and crew of any steamer, which shall go on a second or subsequent trip contrary to the third section of this Act, shall be liable to forfeit double the value of their respective interests in the seals which shall be brought in on such second or subsequent trips, to be recovered and paid to any informer who shall sue for the same, in a summary way, before a Stipendiary Magistrate: Provided that, in case the owner or purchaser of such seals, having had notice that such seals were killed on such second or subsequent trip, shall be liable and responsible for the payment of such penalty, to the extent of the interest of the owner, master, and crew of such steamer:

Proviso.

Provided that, in cases in which a larger sum than 100 dollars 198 shall be adjudged, against any defendant, he may appeal to the Supreme Court, upon (if required) giving good and sufficient security within ten days after conviction, to prosecute the appeal and abide final Judgments.

Masters' penalty. V. Sealing-masters violating the third section of this Act shall be incompetent, for two years after conviction for any offence thereunder, to be employed to command vessels of the seal fishery, or to be cleared at the custom-house, as masters of such vessels.

Term "second trip." VI. For the purposes of this Act, vessels shall be deemed to be on a second or subsequent trip if they shall engage in killing seals on the coast of this island and its dependencies, after clearing and sailing for Davis Straits or Greenland fishery, and the master and owners shall be liable to the same penalties as provided in fourth and fifth sections of this Act. Any complaints, on information under this section, may be made within three months next after the return of the said vessel to a port of this island.

Complaints must be made within three months. VII. Any complaint or information, under the foregoing provisions of this Act, must be made within three months of the time of the alleged breach thereof.

ANNO QUINQUAGESIMO SECUNDO VICTORIÆ REGINÆ.

CAP. I.—*An Act to amend the Law relating to the taking of Seals and Right of Property therein.*

[PASSED MARCH 7, 1889.]

Enacting clause. Be it enacted by the Governor, Legislative Council, and Assembly, in Legislative Session convened as follows:

Repealing clause. I. The first section of the Act passed in the fiftieth year of the reign of Her present Majesty, cap. 23, entitled "An Act to regulate the taking and right of property in Seals," is hereby repealed.

Memorandum respecting the Seal Fishery of the Greenland Sea, prepared at the Board of Trade at the request of the Behring's Sea Commissioners.

Roughly speaking, this so-called fishery used to be carried on between Spitzbergen and Iceland, its chief centre being the neighbourhood of the Island of Jan Mayen.

As early as the month of February 1873 the late Mr. Frank Buckland, by a letter to the "Times," entitled "A Plea for the Seals," and otherwise, called public attention to the abuses connected with the pursuit of this fishery. The circumstances would appear to have been as follows:

About the time of the Spring Equinox, the seals congregate in immense numbers, and the females give birth to their young upon the ice. The young at birth are very helpless, and weigh about 4 lbs., but they grow with astonishing rapidity, and it is said that in about a fortnight the weight of each young seal is some 70 lbs.

Owing to competition in the fishery, it had become the practice to take (*i. e.*, kill) seals immediately upon the birth of the young. In this way the mothers were slain or often scared away from the young before the latter were of age to take care of themselves. The young were of small value for commercial purposes at this stage of their existence, and though some of them were killed and shipped, enormous numbers were left to die of starvation.

Conducted in this manner the fishery was a scene of revolting cruelty, the cries of the thousands of young dying seals being said to resemble the cries of hundreds of thousands of human infants, and the destruction of the fishery by the scattering or extermination of the seals seemed not far distant. The seals in question are not

those from which the fashionable fur is obtained, but their skin is much used for making boots, especially patent leather boots, and the oil obtained from them is applied to various purposes.

As regards the United Kingdom, the fishery was prosecuted from the ports of Dundee and Peterhead. Norway was the foreign country mostly interested. In 1874 the Swedish Government suggested to our Foreign Office that some international arrangement might properly be attempted with a view of imposing restrictive Regulations to remedy the evils above referred to.

The earlier action of the Board of Trade upon this proposal is set forth in Parliamentary Paper No. 73 of 1875 (copy herewith). The result so far was to obtain concurrence on the part of those interested, both in Great Britain and in Norway, as to the necessity for a close season about the time of the birth of the young seals. But there was considerable divergence of opinion both as to the date for ending and the duration of such close season.

Subsequently, the Board of Trade, in consultation with the Foreign Office, framed a Bill, which they introduced into Parliament, and which became law as "The Seal Fishery Act, 1875" (38 Vict. cap. 18). This Act empowered Her Majesty, by Order in Council, to fix a day before which it would be illegal for British subjects in any year to kill or capture, or attempt to kill or capture, seals within an area specified in the Schedule to the Act, and the Act provided heavy penalties for those contravening its provisions. The area in question was that included between 67° and 75° north latitude, and 5° east and 17° west of Greenwich, in adopting which the Board of Trade were chiefly guided by Captain David Gray, of Peterhead, one of the most experienced of the ship-masters engaged in the fishery, and by whose graphic representations Mr. Buckland had been put in motion.

In the meanwhile, the Foreign Office were making representations to other countries who might be interested in the matter, with a view of insuring recip-
199 rocal legislation on their part. As already indicated, the fishery was chiefly conducted by subjects of Great Britain or Norway, but Germany, Holland and Sweden were also, though to only a small extent, concerned.

In the course of the year 1875 all the Governments of these foreign countries expressed a willingness to initiate legislation of the character desired. It was also thought well to provide for the contingency of the subjects of Russia, France, Denmark, or the United States joining in the fishery. The Governments of these latter countries were accordingly informed of what was being done, and a hope was expressed that, in the event of their respective subjects coming, as they might any day do, to fish within the area in question, similar legislation would be adopted by the Governments, and that, in the meantime, they would not allow their flags to be carried by the subjects of countries which had legislated in the matter for the purpose of evading such legislation.

The replies of the first three of these Governments were generally favourable, but that of the United States was indefinite. Neither French nor Danish subjects were, however, engaged in the fishery.

By the commencement of the year 1876 the steps towards legislation in Norway and Sweden were represented as approaching completion, and satisfactory assurances as regards legislation in Germany and Holland had been received. An Order in Council was thereupon obtained in this country which brought the Seal Fishery Act into operation, and fixed the 3rd April in every year as the day before which British subjects should not commence the taking of seals within any part of the area defined in the Schedule to the Act. This date was named as a compromise between the views of British and Norwegian subjects.

The former wished for a rather later, and the latter for a rather earlier, date.

This Order had hardly been promulgated when a telegraphic intimation was received from Her Majesty's Minister at Stockholm to the effect that the Norwegian Government would be unable to obtain legislative authority for fixing a close season as regarded the fishery of the current year. In consequence of this, the British Order in Council had to be revoked.

In the course of the same year the necessary legislation was obtained as regards Norway. There had, however, been in that country a reaction of opinion as to the need of a close season.

This was probably due to a consideration of which the Board of Trade were later on made aware by Captain Gray, *i. e.*, that the new-born seals, which had formerly been of little commercial value, had now become far more valuable owing to a process invented for utilizing their hair in the manufacture of sham seal-skin. They would, in consequence, be taken in as large numbers as possible, instead of being left to die of starvation after the slaughter of the mothers. This, if a fact, would make it perhaps unnecessary to interfere with the conduct of the fishery on the ground of preventing cruelty, but would make a close season more needful as regards preventing the extermination of the seals. The Norwegian Government, however, thought themselves bound in honour to proceed with the measure. Strangely

enough, during the progress of the Bill, there was some idea of making it apply to a larger area than that contemplated by the English Act, it being held in Norway that such an area was an unduly restricted one, and the Bill was passed on the understanding that a modification on this point should hereafter be made, if necessary.

In November 1876 a fresh Order in Council was obtained in England again fixing the 3rd April as the day for opening the fishery, and steps were taken for circulating copies of it and of the Act amongst those concerned in the United Kingdom, and for informing the foreign Governments interested.

By about the end of March 1877 the Governments of Norway, Sweden, Germany, and Holland had all taken legislative steps similar to those adopted in Great Britain, and the close season until the 3rd April thus established has been duly observed by parties of these nationalities and by British subjects, who were all that were engaged in the fishery, except possibly some Russians. It has not been necessary to organize any police for the enforcement of the Act. No date was fixed for the commencement of the close season, though Germany raised the point, the advisableness of fixing a date for that purpose being then doubted by the Board of Trade.

In 1879 Russia intimated that she had imposed similar restrictions on her own subjects.

In 1885 Captain Gray and others of the Peterhead interest represented that the close season which had been imposed had had most beneficial results, but that further restrictions were to be desired.

They intimated that a new branch of the fishery, *i. e.*, that for "hooded seals," had been created between Iceland and Greenland, extending as far south as the latitude of Cape Farewell; and that, with a view to more effectually protect the breeding seals and immature young, the close season should be extended.

They accordingly proposed that the area for restrictions should in future be that comprised between 60° and 76° north latitude, excluding Iceland and its territorial waters, and between the Greenland coast on the west and the ice margin on the east, that the close time should end on the 10th April, and that a definite date (10th July) should be fixed for commencement of the close season.

They added that there was reason to believe that the Norwegians, as the only foreigners then engaged in the fishery, would be ready to concur.

These proposals were supported by the Fishery Board for Scotland, the only part of the United Kingdom from which ships were known to proceed to the fishery. At the instance of the Board of Trade the proposals were submitted by the Foreign Office to the Governments of the five foreign countries who participated in the existing restrictions.

By November 1886 replies were received from all those countries, with the exception of Russia. These replies were to the following effect:

GERMANY AND HOLLAND.

The Governments expressed themselves as disposed to favourably regard the Scottish proposals but as awaiting information as to the course contemplated by other Powers.

200 SWEDEN.

Those interested received the Scottish proposals rather favourably, but wished, in consideration of young seals moulting in April, that opening of fishery should be not later than the 7th of that month, and, further, that closing day should be the 7th July.

NORWAY.

Those interested thought the 10th April and 10th July inadmissible as dates for opening and closing, and did not wish Iceland and its waters excluded from the protected area. They also had proposals of their own widely divergent from those of Scotland. These were:

(*a.*) That to prevent destruction of females, it should be forbidden to kill old seals before the 15th April (6 A. M.) at the places where the young are taken.

(*b.*) That in consideration of hooded seals having no young to need protection towards end of close season, the fishery for these seals between Cape Farewell and Spitzbergen should be free until the 15th July (6 P. M.), after which date it was, according to them, pursued only by one or two ships under conditions ruinous to the fishery, as the seals having by that date become very wild, immense numbers were then destroyed by shooting at long range without many being actually taken.

(*c.*) That to obviate dangers incident to opening the fishery immediately after midnight, the opening should be at 6 A. M. on the 3rd April, or, if that day is a Sunday, at 6 A. M. on the 4th.

(*d.*) That the limits of protected area should be 60° and 78° north latitude, the east coast of Greenland, and 10° east longitude (Greenwich).

These views were conveyed to the Scottish Office by the Board of Trade, with an intimation that they were unable to see that future steps towards establishment of new restrictions could be taken unless some course could be suggested for reconciling the respective views of the Scottish, Norwegian, and Swedish interests.

Early in 1887 the reply of the Scottish interests was received. They thought the point raised by Sweden in connection with young seals moulting not material, as the short hair skins had now become more valuable than the fur-skins. They were willing to accept the area as defined by Norway, and that, on the day of opening, the fishery should commence at 6 A.M. They agree as to need for protecting female seals, but thought opening on the 10th April would insure this, as later the females would get too wild to allow of their being shot, and they agree as to need for protecting hooded seals late in the season.

They were, however, firm as to the need for making the opening and closing dates for the fishery as near the 10th April and 10th July as possible, and did not see how hooded seal fishery could be made free during general close time without endangering the observance of close time for other kinds of seals.

These views were communicated to the Foreign Office by the Board of Trade in the hope of an understanding being arrived at between Norway and Scotland, so as to form a basis for negotiation with the other Powers. At the same time, it was pointed out that the including of Iceland and its waters in the protected area would involve inviting Denmark to join in the arrangements.

In March 1888 a further communication was received from Norway. It now appeared that, owing to a change observed in the last two or three years in the condition of the ice off Greenland, the Norwegian interests no longer wish the hooded seal fisheries to close on the 15th July.

They declined to make any concession as regards the day for opening the seal fishery generally, and it was doubtful whether they would adopt any date for closing. On other points they now acquiesced with Scotland, to which country these views were conveyed.

Later in the year Russia intimated that she concurred with Norway on all points.

Subsequent correspondence afforded no prospect of reconciling the divergent views of Scotland and Norway, whilst Denmark took exception to the territorial waters of either Iceland or Greenland being included in the area of protection.

In these circumstances, the negotiations came to a standstill, and the arrangements made in 1875–79 have been maintained.

Copy of the English Act, with the Order in Council, in handbill form, as circulated in the past amongst those interested and now in force, is annexed.

(Initialled) J. M. N.

FEBRUARY 11, 1892.

SEAL FISHERY (GREENLAND).—38 VICT., CAP. 18.

Order in Council made the 28th day of November, 1876, for applying "The Seal Fishery Act, 1875."

At the Court at Windsor, the 28th day of November, 1876.

Present: THE QUEEN'S MOST EXCELLENT MAJESTY IN COUNCIL.

Whereas by "The Seal Fishery Act, 1875," it is enacted that when it appears to Her Majesty in Council that the foreign States whose ships or subjects are engaged in the seal fishery in the area mentioned in the Schedule to that Act, or any
201 part of such area, have made or will make, with respect to their own ships and subjects, the like provisions to those contained in that Act, it shall be lawful for Her Majesty, by Order in Council, to direct that that Act shall, after the date mentioned in the Order, apply to the seal fishery within the said area, or such part thereof as may be specified in the Order:

And whereas it has been made to appear to Her Majesty in Council that the foreign States whose ships or subjects are at present engaged in the seal fishery in the area mentioned in the Schedule to the said recited Act have made or will make, with respect to their own ships and subjects, the like provisions to those contained in the said recited Act:

Now, therefore, Her Majesty, in exercise of the power vested in her by the said recited Act, by and with the advice of her Privy Council, is pleased to direct that "The Seal Fishery Act, 1875," shall, after the date of this present Order, apply to the seal fishery within the area mentioned in the Schedule to the said Act.

And Her Majesty, in exercise of the same power, by and with the like advice, is further pleased to fix the 3rd day of April in every year as the day before which the

master and person in charge of, and every person belonging to, any British ship, and every British subject, shall not kill or capture, or attempt to kill or capture, any seal within the area mentioned in the Schedule to the said Act.

"The Seal Fishery Act, 1875," is as follows:

38 VICT., CAP. 18.—*An Act to provide for the establishment of a Close Time in the Seal Fishery in the Seas adjacent to the Eastern Coasts of Greenland.*

[JUNE 14, 1875.]

Be it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

Application of Act by Order in Council in conjunction with foreign States.

1. When it appears to Her Majesty in Council that the foreign States whose ships or subjects are engaged in the seal fishery in the area mentioned in the Schedule to this Act, or any part of such area, have made or will make, with respect to their own ships and subjects, the like provisions to those contained in this Act, it shall be lawful for Her Majesty, by order in Council, to direct that this Act shall, after the date mentioned in the Order, apply to the seal fishery within the said area, or such part thereof as may be specified in the Order.

Her Majesty may, by the same or any subsequent Order, limit the operation of the Order, and render the operation thereof subject to such conditions, exceptions, and qualifications as may be deemed expedient.

So long as an Order under this section remains in force this Act shall, subject to any such limitation, condition, exemption, or qualification as aforesaid, apply to the seal fishery within the said area, or such part as may be specified in the Order.

Her Majesty may from time to time, by Order in Council, rescind, alter, or add to any Order made in pursuance of this section, and make a new Order in lieu thereof.

Every Order in Council made in pursuance of this section shall be laid before both Houses of Parliament within six weeks after it is made, or if Parliament be not then sitting, within six weeks after the then next meeting of Parliament, and shall also be published in the "London Gazette."

Close time for seal fishery.

2. When an Order in Council has been made for applying this Act, then, so long as such Order remains in force, the master or person in charge of or any person belonging to any British ship, or any British subject, shall not kill or capture, or attempt to kill or capture, any seal within the area mentioned in the Schedule to this Act, or the part of the area specified in the Order, before such day in any year as may be fixed by the Order, and the master or person in charge of a British ship shall not permit such ship to be employed in such killing or capturing, or permit any person belonging to such ship to act in breach of this section.

Any person who is guilty of any breach (by any act or default) of this section shall be liable to a penalty not exceeding 500*l.* for each offence.

Prosecution of offences.

3. Every offence under this Act may be prosecuted, and every penalty under this Act may be recovered—

(1.) In England, before two Justices of the Peace in a summary manner, or by action in any of Her Majesty's Superior Courts at Westminster, together with full costs of suit; and

(2.) In Scotland, by action as for a debt in the ordinary Sheriff Court or in the Court of Session; and

(3.) In Ireland, before two Justices of the Peace in a summary manner, or by personal action in any of Her Majesty's Superior Courts at Dublin.

Provided that the penalty imposed in a summary manner by two Justices shall not exceed 100*l.*, exclusive of costs.

One-half of every penalty recovered under this Act shall be paid to the person who prosecuted the offence or sued for such penalty.

For all purposes of and incidental to the trial and punishment of any person accused of an offence under this Act, and the proceedings and matters preliminary and incidental to and consequential on his trial and punishment, and for all purposes of and incidental to the jurisdiction of any Court or of any constable or officer with reference to such offence, the offence shall be deemed to have been committed either in the place in which it was actually committed or in any place in which the offender may for the time being be found.

4. Where an offence under this Act is committed, then—
(*a.*) If the same is committed by the fault or with the connivance of the master of any ship, that master, and— Liability of owner and master of ship in certain cases.
202 (*b.*) If the same is committed by the fault or with the connivance of the owner of any ship, that owner—
shall be liable to the like penalty to which the person committing such offence is liable under this Act.

5. Where the owner or master of a ship is adjudged to pay a penalty for an offence under this Act, the Court may, in addition to any other power they may have for the purpose of compelling payment of such penalty, direct the same to be levied by distress or arrestment and sale of the said ship and her tackle. Liability of ship to penalty.

6. In this Act the expression "seal" means the harp or saddleback seal, the bladdernosed or hooded seal, the ground or bearded seal, and the floe seal or floe rat, and includes any animal of the seal kind which may be specified in that behalf by an Order in Council under this Act. Definition of "seal."

7. This Act may be cited as "The Seal Fishery Act, 1875." Short title.

SCHEDULE.

Area to which Act applies.

The area included between the parallels of 67° and 75° of north latitude, and between the meridians of 5° east and 17° west longitude, reckoned from the meridian of Greenwich.

Norwegian Law for the establishment of a Close Time for Seal Fishery in the Arctic Seas.—Stockholm, May 18, 1876.

[Translation.]

We, Oscar, by the grace of God King of Norway and Sweden, the Wends and Goths, hereby notify that a Resolution passed by the Ordinary Storthing now in session, on the 25th April of this year, of the following tenour, has been submitted to us:

1. When it shall appear that the foreign States whose ships or subjects are engaged in the seal fishery in the area included between the parallels of 67° and 75° of north latitude, and between the meridians of 5° east and 17° west longitude, reckoned from the meridian of Greenwich, have made or may hereafter make the like provision, it shall be lawful for the King to fix a time of year during which it is forbidden either for the crew of a Norwegian vessel or for a Norwegian subject within the area aforesaid to kill or capture seals, including *Cystophora cristata*.

2. Any one guilty of a breach of the prohibition enacted by section 1, or who shall in any way aid or abet such breach, shall be liable to a fine of from 200 to 10,000 kronor. But none of the crew shall be held liable except the master in case the said breach took place either by his order or with his knowledge, and without his having done everything in his power to prevent the same.

The provision in the Criminal Law of the 3rd June, 1874, 2nd chapter, section 40, last sentence, is not applicable.

3. In the event of a breach of the present Law taking place, it will be dealt with by the Police Court. The vessel will be liable for any fine that may be incurred by either the master or owner. One-half of the fines shall go to the informer.

We have, therefore, accepted and sanctioned, as we hereby accept and sanction, this Resolution as law.

Given at our Palace at Stockholm, the 18th May, 1876, under our hand and seal of the realm.

(Signed) [L. S.] OSCAR.

Ordinance of the King of Sweden and Norway to establish a Close Time for the Seal Fishery by Swedish Vessels in the Arctic Seas.—Stockholm, November 30, 1876.

[Translation.]

We, Oscar, by the grace of God King of Sweden and Norway, of the Goths and the Wends, make known that, considering that the seal fisheries in the Arctic Seas, especially in the neighbourhood of Jan Mayen's Island, are conducted in such a manner as to threaten the extermination of the seal in those waters, and the total destruc-

tion of the fisheries, negotiations have been initiated by our Kingdom of Norway with the Governments of those foreign countries whose inhabitants take part in the said fisheries, and those Governments having now promulgated, or declared their willingness to promulgate, suitable Ordinances to the above effect, and seeing that a certain small number of Swedish ships also take part in the fisheries, and that, in so far as these Ordinances are calculated to work the desired effect, it is essential that, as has already been ordained elsewhere, the liability for their violation should be of such a character as to outweigh the benefit to be derived from a breach of the law, we have now thought it right, in so far as Sweden is concerned, to participate in the said Agreement, and we have therefore graciously ordained as follows:

§ 1. In the Arctic Seas, between 67° and 75° north latitude and 5° east and 17° west longitude from Greenwich, all Swedish ships and all Swedish subjects are forbidden until further notice to kill or catch seal (including the *Phoca cristata*) earlier in the year than the 3rd April.

203 § 2. All persons infringing the Regulations contained in the foregoing paragraph, or being in any manner parties to such infringement, will be liable to a fine of from 200 to 10,000 kronor, with the proviso that, should the said infringement have taken place either in obedience to the orders of the captain of the ship or with his knowledge, or without his having done everything in his power to guard against it, he alone of all the crew shall be liable to the penalty incurred. Of the fines imposed, half goes to the informer and half to the Crown. Failing means to meet the fine, the corresponding legal penalty shall be enforced.

§ 3. In cases of violation of the prescriptions of this Ordinance, jurisdiction lies with the ordinary Courts.

Let this be obediently observed by all whom it may concern. For further certainty we have hereunto affixed our hand and seal.

(Signed) (L. S.) OSCAR.

STOCKHOLM PALACE, *November 30, 1876.*

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204 APPENDIX (F).

PARTICULARS OF PELAGIC CATCH OF BRITISH AND UNITED STATES SEALING-VESSELS, 1871-91.

Memorandum on the Number of Fur-Seal Skins taken at Sea in 1891.

From the Returns (Table A) compiled by Mr. Milne, the Collector of Customs at Victoria, British Columbia, and from information furnished by Mr. D. Oppenheimer, the Mayor of Vancouver, it appears that the number of British vessels engaged in sealing in 1891 was fifty, and that their total catch for the year was 49,615. These Returns have been compiled with the greatest care.

With regard to the catch of the United States sealing-vessels for the same year, there is much difficulty in arriving at an estimate of the number of skins taken, owing to the fact that practically no records were kept by the United States Customs authorities of the number of skins landed. The only official Returns supplied to us are those derived from a telegram from the Custom-house at San Francisco to the Treasury Department at Washington (Table B), which gives certain particulars as to the catch of sixteen vessels, and statements from the Collectors of Customs at San Francisco, Port Townsend, Astoria, and San Diego, giving the number of sealing-vessels that cleared from those ports in 1891 (Table C).

From the latter Table it appears that the number of United States vessels engaged in sealing in 1891 was forty-two, but no details as to their catch are given.

It has been ascertained that 62,500 seal-skins were sold in London in 1891, under the classification of "North-West," this being the termed used for skins supposed to be taken at sea.

If we assume that these represent the whole pelagic catch for the season of 1891 in all parts of the North Pacific Ocean, and deduct from this number those known to have been taken by British vessels, *i. e.*, 49,615, there remains a balance of 12,885 skins to be accounted for. A certain number of these may have been taken by the Indians in canoes on the coasts of Washington, British Columbia, and South-East Alaska, but their number would probably not amount to more than 3,000. This would leave about 10,000 as the catch of the United States sealing-vessels.

It must, however, be borne in mind that the above figure of 62,500 does not represent the total number of skins taken, as a portion of those sent to London are re-exported after having been dressed, and thus would not appear in the sales list, and that, besides, many skins are not sent to London at all to be dressed, but are prepared in America.

It appears, therefore, that in the absence of sufficient official records it is impossible to form anything more than a very approximate estimate of the number of sealskins taken by the United States sealing-vessels.

Taking the average catch of the British Columbian vessels as 1,000, and allowing a similar catch to the United States vessels, their total catch would amount to about 40,000, but from information derived from unofficial sources this estimate appears to be too great, and after careful consideration it may be estimated that the catch of the forty-two United States vessels engaged in sealing in 1891 was between 16,000 and 20,000.

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205 TABLE (A).—*British Columbian Sealing Fleet, 1891.*

Name of Vessel.	Tons.	Boats or Canoes.	Crew. White.	Crew. Indian.	Catch. Coast.	Catch. Sand Point.	Catch. Behring Sea.	Catch. Total.	Date of Warning.	Date of Return to British Columbia.	Where warned.*
Annie C. Moore	113	7	23	....	46	442	1,588	2,076	Aug. 6	Aug. 30	I.
Aurora	42	11	5	15	53	340	47	440	July 7	" 11	I.
Anioka	75	12	5	23	.....	406	.....	406	June 30	July 27	O.
Ariel	91	10	7	16	.....	.....	1,082	1,082	Aug. 16	Sept. 7	I.
Annie E. Paint	82	6	21	....	.....	.....	154	154	June 29	July 28	O.
Beatrice	66	12	5	22	59	136	876	1,071	July 23	Sept. 27	I.
Beatrice (Vancouver)	48	....	16†	....	.....	136	206	342	" 8	Aug. 29	I.
Borealis	37	13	5	25	.....	473	1,547‡	2,419	.....	" 31	
C. D. Rand (Vancouver)	19	....	4	....	.....	.....	.....	.....	July 12	.....	I.
Carlotta G. Cox	76	6	20	....	.....	517	1,519	2,036	Aug. 10	Aug. 30	I.
Carmelite	99	7	23	....	.....	751	1,639	2,390	" 8	Sept. 2	I.
C. H. Tupper	99	7	24	....	.....	235	374	609	July 1	.....	O.
Eliza Edwards, steam-ship (Vancouver)	37	....	15	....	.....	1	49	50	" 7	.....	I.
E. B. Marvin	117	7	23	....	276	462	.....	738	" 1 (Seized July 6)	July 27	I.
Favourite	80	12	6	20	35	337	2,381	2,753	Aug. 12	Sept. 18	I.
Geneva	92	6	23	....	3	224	267	494	July 16	Aug. 30	I.
Katherine	81	9	5	16	.....	191	1,224	1,415	" 18	Sept. 24	I.
Kate	58	9	5	20	32	.....	1,100	1,132	.....	" 28	
Letitia	28	6	....	12	4	.....	.....	4	.....	.....	
Labrador	25	5	11	....	.....	374	216	590	July 18	Aug. 28	I.
Laura	19	6	6	14	.....	.....	61	61	" 17	" 24	I.
Minnie	46	12	6	20	308	373	22	703	" 15	" 3	I.
Maggie Mac	71	7	24	....	137	548	3	688	" 1	July 14	O.
Mary Taylor	43	5	18	....	54	445	264	763	.....	Aug. 29	
Mascotte	40	2	5	....	7	.....	79	86	.....	Nov. 16	
Mountain Chief	23	6	....	12	21	.....	.....	21	.....	Aug. 29	
Mary Ellen	69	16	12	24	21	609	65	695	July 2	July 29	O.
Maud S.	97	7	24	....	.....	394	1,030	1,424	" 23	Sept. 26	I.
May Belle	58	5	19	....	.....	701	241	942	" 22	Aug. 21	I.
Otto	85	5	7	6	.....	.....	48	48	Seized	Sept. 27	I.
Ocean Belle	83	7	23	....	170	568	1,170	1,908	June 30	" 23	O.
Oscar and Hattie	81	5	29	....	54	409	1,062	1,525	.....	" 22	
Penelope	70	7	20	....	229	410	691	1,330	July 7	Oct. 3	I.
Pioneer	66	6	21	....	162	712	1,484	2,358	.....	Sept. 17	
Rosie Olsen	38	9	3	16	40	176	52	268	July 24	Aug. 29	I.
Sierra	35	6	....	12	886	.....	.....	886	.....	.....	
Sapphire	124	8§	20	†13	30	974	2,435	3,439	Aug. 9	Sept. 2	I.
Sea Lion	50	6	19	....	354	584	82	1,020	July 14	Aug. 1	I.
Teresa	63	7	23	....	.....	307	985	1,292	" 17	Sept. 27	I.
Triumph	98	7	23	....	176	666	171	1,013	" 17	Aug. 5	I.
Thistle, steam-ship	147	7	26	....	9	294	82	385	" 12	" 1	I.
Umbrina	98	7	23	....	.....	405	504	909	" 23	Sept. 9	I.
Venture	48	15	4	20	.....	.....	659	659	.....	" 17	
Vancouver Belle (Vancouver)	73	....	27	....	.....	.....	28	28	July 5	.....	I.
Viva	92	6	23	....	.....	1,261	731	1,992	June 30	Sept. 17	O.
W. P. Sayward	59	13	6	25	187	734	801	1,722	.....	Aug. 22	
Winnifred	13	2	2	8	7	.....	98	105	July 15	" 11	I.
Walter A. Earle	68	6	20	....	198	848	1,021	2,067	Aug. 12	Sept. 2	I.
Wanderer	25	6	4	12	7	200	330	537	" 15	" 17	I.
Walter L. Rich	79	7	22	....	.....	519	21	540	June 29	July 27	O.
Fifty vessels	3,401	369	715	368	3,565	17,162	28,888	49,615			
Skins purchased from Indians at Victoria in 1891	.....	....	....	....	.....	.....	.....	1,953			

*I. = Inside Behring Sea. O. = Outside Behring Sea.

†Total crew. ‡399 caught off Kurile Islands. §*Qy.* Boats apart from canoes.

206 TABLE (B).—*Particulars of United States Sealing Fleet, 1891.*

N. B.—These particulars are derived from information given to the Behring Sea Commissioners by Mr. J. Stanley-Brown at Washington in March 1892, and which he stated was all that he was able to collect from official sources.

24 sealing-vessels cleared from San Francisco in 1891, as per telegrams from Collector E. B. Jerome, February 25 and 26, 1892:

Albert Walker.	Mattie T. Dyer.	Sophie Sutherland.
Hattie Gage.	C. H. White.	San Diego.
Helen Blum.	City of San Diego.	Annie Harley.
Lily L.	J. H. Lewis.	Emma and Louise.
C. G. White.	E. E. Webster.	Rosie Sparks.
Hermann.	Lizzie Derby.	Pearl.
La Nimfa.	John Hancock.	Alexander.
Louis Olsen (s. s.).	Mary Gilbert.	Thistle (s. s.).

9 sealing-vessels cleared from Port Townsend, as per telegrams from Collector A. Wasson, February 25 and 26, 1892:

Allie Alger.	George R. White.	Henry Dennis.
Emmet Felix.	Mist.	J. G. Swan (Neah Bay).
Challenge.	Mayflower.	Lottie (Neah Bay).

2 sealing-vessels cleared from Astoria, as per telegrams from Collector E. A. Taylor, February 25 and 26, 1892:

Bessie Rutter.
Kate and Ann (Yakina Bay).

2 sealing-vessels cleared from San Diego, as per telegram from Collector John R. Berry, February 26, 1892:

Laura.
Ethel.

5 sealing-vessels cleared from miscellaneous United States ports:

Sitka (2).	*Kadiak Island* (3).
Leo.	Nellie Martin.
Sitka.	Undaunted.
	F. F. Feeney.

42 total number of vessels.

TABLE (C).—*Information tabulated from Telegrams from the Custom-house at San Francisco to the Treasury Department, Washington, dated February 16, 1892.*

[Taken from Manifests; and Mr. Stanley-Brown states is all that the Custom-house is able to furnish.]

Name of Vessel.	Date of Arrival.	Skins reported.
J. H. Lewis	March 7, 1891	7
Rosie Sparks	August 1, "	148
Sophie Sutherland	" 5, "	17
San Diego	" 17, "	465
C. H. White	" 17, "	438
C. G. Wilson	" 21, "	28
Mattie Dyer	" 21, "	15
C. G. White	September 1, "	1,686
Alexander	" 8, "	9
Ditto	December 28, "	10
Lily L.	September 16, "	61
Hermann	" 23, "	31
Helen Blum	" 24, "	3
E. E. Webster	October 3, "	.....
Pearl	" 8, "	2
Emma and Louise	" 9, "	894
La Nimfa	November 9, "	9

The following skins were taken to ports in Alaska, and arrived at San Francisco in coasting-vessels:

Name of Vessel.	Date.	Cargo.
SS. Bertha	July 31, 1891	17 cases of skins.
Undaunted	August 4, "	16 barrels.
N. Thayer	" 14, "	150 packages.
Blakeley	" 27, "	46 sacks and 12 bundles.
SS. Jennie	October 8, "	21 skins.
Arago	November 9, "	42 bundles and 1 box.

207 *Summary Statement of the Approximate Number of Fur-Seal Skins taken by Pelagic Sealers from 1871 to 1891.*

Year.	Number of British Columbian Vessels.	Catch.	Approximate Number of United States Vessels.	Approximate Catch.	Catch of Foreign Vessels.	Approximate Total.
1871 to 1878	About 3	†2,000	1			2,000
1879	4	†4,800				4,800
1880	4	†4,800				4,800
1881	5	†6,000				6,000
1882	8	†12,000				12,000
1883	9	†13,500	1	2,500 (in Behring Sea)	1 German (catch unknown)	16,000
1884	11	†16,500	3		" " "	16,500
1885	13	21,189			" 1,756	25,935
1886	16	24,344	13	11,000	" 605	36,000
1887	17	20,266	32	16,000	" 1,350	37,500
1888	21	24,329	8	Unknown	" 1,214	25,000
1889	22	27,868	33	13,300	" 1,701	42,870
1890	29	39,547	12	11,000	" 1,031	51,560
1891	50	49,615	42	18,000		68,000

Since 1885 correct data of the British Columbian sealing-vessels have been preserved; previous to that year the figures given are approximate.

All figures given for the United States sealing-fleet are approximate, no reliable records having been kept.

The catch of the German vessel ("Adèle") are correct, she having landed her cargo at Victoria.

Annual Reports of Number and Catch of British Columbian Sealing Fleet from 1871 to 1890.

SEALING REPORT FROM YEARS 1871 TO 1878.

Vessels.	Tons.	Crew.
Favourite	80	14
Thornton	29	8
Anna Beck	36	9

The above vessels at this time were not regularly engaged in seal-hunting, but were visiting the trading stations of their owners, where many of the skins were obtained by barter from the Indians along the west coast of Vancouver Island, Queen Charlotte Islands, Bella Bella, Bella Coula, and other points on the British Columbian coast.

The owners being very reticent, no reliable information could be obtained; consequently, the number of skins and the extent of the industry were not known at that time.

The probable catch of the Indians and above vessels would be about from 3,000 to 5,000 skins yearly, and the price at this time was low, about from 3 to 4 dollars per skin.

It was reported in the years 1874 and 1875 that the American schooner "Cygnet," Captain Kimberly, went to Behring Sea and obtained good catches. This is probably incorrect, as the chief object of her voyage was sea-otter hunting, she once bringing them to Victoria.

SEALING REPORT FOR YEARS 1878 TO 1880.

Vessels.	Tons.	Crew.
Favourite	80	14
Thornton	29	8
Anna Beck	36	9
Onward	35	9

These vessels were engaged in the coast sealing only, with an average catch each of about 1,200; price of skins then in Victoria from 4 to 5 dollars each, the Indian catch being about 2,000 to 2,500 skins yearly.

208 SEALING REPORT, 1881.

Vessels.	Tons.	Crew.
Favourite	80	14
Thornton	29	8
Anna Beck	36	9
Onward	35	9
Mary Ellen	63	12

These vessels were only engaged in sealing on the west coast of Vancouver Island, about 1,200 skins being the average catch. Value at Victoria about 5 dollars per skin.

No official Report made by above vessels, and no memoranda at Custom-house.

About this time the Indians would kill and bring to Victoria for sale about 2,500 skins yearly.

SEALING REPORT, 1882.

Vessels.	Tons.	Crew.
Favourite	80	14
Thornton	29	9
Anna Beck	36	9
Onward	35	9
Grace	77	12
Alfred Adams	69	14
W. P. Sayward	59	12
Mary Ellen	63	12

These vessels were only engaged in sealing on the west coast of Vancouver Island, and did not go to Behring Sea. The average catch would be about 1,500 skins for each vessel, and the prices low, about from 5 dollars to 5 dol. 50 c. per skin.

Vessels at this time considered in the coasting trade, and no official Report kept.

SEALING REPORT, 1883.

Vessels.	Tons.	Crew.
Mary Ellen	63	12
Grace	77	14
W. P. Sayward	59	12
Anna Beck	36	10
Thornton	29	9
Dolphin	60	12
Kate	58	12
Alfred Adams	69	14
Favourite	80	16

None of these vessels cleared for or entered Behring Sea, but confined their operations to hunting on the west coast of Vancouver Island. Number of seals taken by each schooner not recorded. The average catch for each vessel would be about 1,500 skins; value at Victoria about 6 dollars each.

In this year the American schooner "City of San Diego," Daniel McLean, master, and his brother Alexander, mate, and a crew of thirteen men, entered Behring Sea to hunt seals, and had a successful catch of 2,500 skins. This vessel fitted out in San Francisco and proceeded direct to Behring Sea.

In this year the German schooner "Adèle," which came from Japan, was caught trespassing near seal islands in Behring Sea, and was seized, but was afterwards released. The seizing vessel confiscating the skins, reported the skins taken at about 300.

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209 SEALING REPORT, 1884.

Vessels.	Tons.	Crew.
Thornton	29	9
Dolphin	60	16
Onward	35	9
Kate	58	12
Anna Beck	36	9
Grace	77	18
W. P. Sayward	59	12
Alfred Adams	69	16
Black Diamond	81	19
Mary Ellen	63	17
Favourite	80	19

All the above reported as having entered Behring Sea, but no returns reported. Average in 1884 about 1,500 skins per vessel. Have carefully examined the records, and can find no particulars of catch.

The following foreign vessels also cleared from Victoria, British Columbia, but did not return:

Vessels.	Tons.	Crew.	
City of San Diego	46		
Alexander	45		American.
Otter	38		
Adèle	50	10	German.

CATCH OF BRITISH COLUMBIAN SEALING-VESSELS, 1885.

Vessels.	Tons.	Men.	Catch.		
			Coast.	Behring Sea.	Total.
Rustler	28	5	1,450	.....	1,450
Kate	58	14	1,675	.....	1,675
Favourite	80	18	1,726	.....	1,726
Onward	35	9	1,694	.....	1,694
Dolphin	60	15	1,833	.....	1,833
Black Diamond	81	15	1,426	.....	1,426
Alfred Adams	69	18	1,512	300	1,812
Grace	77	16	1,800	.....	1,800
Thornton	29	9	1,425	.....	1,425
W. P. Sayward	59	16	1,900	.....	1,900
Mountain Chief	26	6	1,225	.....	1,225
Anna Beck	36	7	1,234	.....	1,234
Mary Ellen	63	18	1,489	500	1,989
(Thirteen vessels.)	701	166	20,339	800	21,139

OTHER SKINS LANDED AT VICTORIA.

Adèle (German)	50	15	1,356	400	1,756

210 CATCH OF BRITISH COLUMBIAN SEALING-VESSELS, 1886.

Vessels.	Tons.	Boats and Canoes.	Crew.	Catch.		
				Coast.	Behring Sea.	Total.
Mary Ellen	63	6	24	1,200	2,353	3,553
Pathfinder	66	6	22	750	950	1,700
Dolphin	60	5	18	1,040	960	2,000
Penelope	70	6	20	600	650	1,250
Grace	77	6	21	600	1,100	1,700
Anna Beck	36	9	18	541	601	1,142
W. P. Sayward	59	5	24	750	850	1,600
Alfred Adams	69	10	22	650	750	1,400
Favourite	80	12	28	650	2,231	2,881
Black Diamond	81	12	24	350	378	728
Teresa	63	5	18	800	1,400	2,200
Arctica	42	4	16	1,300	.....	1,300
Kate	58	4	15	1,090	.....	1,090
Thornton*	29	3	14	500	.....	500
Onward*	35	4	15	400	.....	400
Carolina*	32	4	15	700	.....	700
(Sixteen vessels.)	920	101	314	11,921	12,423	24,344
Adèle (German)	50	4	16	433	132	605

* These vessels were seized and confiscated by the United States Government.

CATCH OF BRITISH COLUMBIAN SEALING-VESSELS, 1887.

Vessels.	Tons.	Boats.	Crew.	Catch.		
				Coast.	Behring Sea.	Total.
W. P. Sayward*	59	12	24	477	.....	477
Anna Beck*	36	4	12	210	126	336
Grace*	77	6	18	410	350	760
Dolphin*	60	5	18	330	288	618
Alfred Adams*	69	12	29	525	854	1,379
Acla*	64	6	24	512	1,364	1,876
Lottie Fairfield	125	6	24	400	2,600	3,000
Mary Taylor	43	5	18	450	550	1,000
Pathfinder	66	6	21	1,000	1,300	2,300
Penelope	69	6	23	800	700	1,500
Triumph	98	6	24	.....	480	480
Favourite	80	14	28	630	1,257	1,887
Black Diamond	81	5	21	250	245	495
Mountain Chief	26	7	15	700	.....	700
Teresa	63	7	23	550	696	1,246
Kate	58	8	20	743	.....	743
Mary Ellen	69	8	24	515	945	1,460
(Seventeen vessels.)	1,143	123	361	8,502	11,764	20,266
Adèle (German)	50	5	20	720	630	1,350

* Seized by United States Government in Behring Sea.

211 CATCH OF BRITISH COLUMBIAN SEALING-VESSELS, 1888.

Vessels.	Tons.	Boats.	Crew.	Catch.		
				Coast.	Behring Sea.*	Total.
Mary Ellen	69	12	30	805	910	1,715
Penelope	69	5	20	1,410	1,937	3,347
Juanita	40	13	28	177	1,017	1,194
Mountain Chief	26	6	10	400	825	1,225
San José	52	4	16	107	.....	107
Sapphire	124	9	22	1,200	.....	1,200
Viva	92	6	21	806	2,069	2,875
Black Diamond	81	9	20	231	863	1,094
Mary Taylor	43	9	24	392	.....	392
Triumph	98	12	29	.....	2,470	2,470
Annie C. Moore	113	6	23	.....	715	715
Maggie Mac	71	5	20	125	1,299	1,424
Favourite	79	13	30	300	1,834	2,134
Annie	25	5	11	156	1,039	1,195
Rosie Olsen	39	4	13	100	500	600
Pathfinder	66	9	22	600	650	1,250
Lily	68	12	22	93	.....	93
O. S. Fowler	34	3	12	230	.....	230
Minnie	46	12	26	209	525	734
Aurora	41	11	23	335	.....	335
Araunah†	71	5	20	.....	.....	.....
(Twenty-one vessels.)	1,347	170	442	7,676	16,653	24,329
Adèle (German)	50	8	20	392	822	1,214

* The Behring Sea catch for this and previous years includes a certain number of skins taken on the coast of British Columbia to the north of Vancouver Island, the schooners having no opportunity of landing the skins before entering Behring Sea.

† "Araunah" seized by Russians near Copper Island (Parliamentary Paper C. 6253, p. 80).

CATCH OF BRITISH COLUMBIAN SEALING-VESSELS, 1889.

Vessels.	Tons.	Boats.	Crew.	Catch.			
				Spring.	Coast.	Behring Sea.	Total.
Pathfinder	66	6	24	384	558	48	990
Teresa	63	7	23	284	198	828	1,310
Annie C. Moore	113	7	23	313	489	1,318	2,120
Viva	92	6	22	589	872	2,182	3,643
Penelope	70	6	21	384	.....	1,796	2,180
Sapphire	123	18	39	754	610	1,626	2,990
Aurora	41	11	22	330	486	.....	816
Juanita	40	13	29	103	32	29	164
Mary Taylor	42	6	18	383	364	.....	747
Minnie	46	10	21	200	.....	500	700
Wanderer	15	6	15	178	.....	.....	178
Ariel	90	6	22	.....	841	844	1,685
Lily	68	11	25	280	.....	74	354
Black Diamond	81	12	29	347	282	55	684
Ka'e	58	10	24	624	.....	800	1,424
Favourite	79	10	25	.....	340	1,764	2,104
Mountain Chief	26	5	13	210	.....	.....	210
Sierra	10	2	5	80	.....	.....	80
W. P. Sayward	59	12	29	.....	557	1,643	2,200
Winnifred	10	2	5	22	.....	.....	22
Beatrice	67	7	22	500	.....	700	1,200
Maggie Mac	70	6	25	164	613	1,290	2,067
(Twenty-two vessels.)	1,329	179	481	6,129	6,242	15,497	27,868
Adèle (German)	.....	.....	.....	240	1,461	.....	1,701

212 CATCH OF BRITISH COLUMBIAN SEALING-VESSELS, 1890.

Vessels.	Tons.	Boats.	Crew.		Catch.			
			White.	Indian.	Spring.	Coast.	Behring Sea.	Total.
Mary Taylor	43	11	6	18	104	302	592	998
Pioneer	66	5	20	.....	235	716	984	1,935
Viva	92	6	23	.....	262	436	2,015	2,713
Triumph	98	7	23	.....	182	1,018	473	1,673
E. B. Marvin	117	7	26	.....	368	878	918	2,164
Sapphire	124	19	6	36	119	1,378	745	2,242
C. H. Tupper	99	7	23	.....	.....	571	796	1,367
Kate	58	16	5	22	156	511	230	897
Favourite	80	13	6	26	356	981	1,116	2,453
Aurora	42	11	5	19	165	797	.....	962
Beatrice	66	12	4	25	220	710	854	1,784
Katherine	81	11	5	18	380	345	945	1,670
Lily	69	9	5	20	122	.....	500	622
Penelope	70	5	22	.....	148	578	445	1,171
W. P. Sayward	59	9	6	16	154	339	459	952
Maggie Mac	71	6	20	.....	.....	1,200	752	1,952
Juanita	40	10	6	16	97	311	770	1,178
Annie C. Moore	113	7	26	.....	90	703	630	1,423
Teresa	63	7	23	.....	175	569	450	1,194
Ariel	91	12	4	24	220	349	1,137	1,706
Minnie	46	9	5	16	300	764	1,467	2,531
Sea Lion	50	5	18	.....	254	817	774	1,845
Walter L. Rich	79	6	20	.....	122	562	633	1,317
Ocean Belle	83	7	23	.....	.....	946	480	1,426
Wanderer	25	9	4	15	82	.....	.....	82
Venture	48	4	15	.....	94	.....	.....	94
Mary Ellen	70	7	23	.....	115	951	.....	1,066
Mountain Chief	23	4	.....	10	60	.....	.....	60
Letitia	28	5	.....	12	70	.....	.....	70
(Thirty vessels.)	1,994	246	372	293	4,658	16,732	18,165	39,547
Adèle (German)	.....	.....	.....	7	220	.....	811	1,031

Approximate Number and Catch of United States Sealing Fleet, 1886–91.

		Skins.
1886—		
City of San Diego, Sylvia Handy, Vanderbilt	Landed at Victoria	2,648
About ten others, with total catch of, say		8,500
Total for 1886 (thirteen vessels)		11,000
1887—		
City of San Diego, Vanderbilt	Landed at Victoria	2,487
About thirty others, with total catch of, say		13,500
Total for 1887 (thirty-two vessels)		16,000
1888—		
About eight vessels, catch unknown.		
1889—		
Walter L. Rich, San Diego, Venture, Allie Alger, Henry Dennis, Lottie, Molly Adams, Bessie Rutter, J. H. Lewis	Landed at Victoria	5,741
About twenty-four other vessels, with total catch of, say		7,600
Total for 1889 (thirty-three vessels)		13,300
1890—		
Mattie Dyer, San Diego, Geo. A. White, Henry Dennis, Venture	Landed at Victoria	3,116
About seven others, with total catch of, say		8,000
Total for 1890 (twelve vessels)		11,000

213 APPENDIX (G).

MISCELLANEOUS TABLES.

1. Average Prices realized for Alaska Salted Fur-Seal Skins at Public Auction in London.
2. Statement of Fur-Seal Skins obtained in trade from Indians by the Hudson Bay Company on the coast of British Columbia between Port Simpson and the northern end of Vancouver Island, 1852 to 1890.
3. Skins taken for Shipment from Commander Islands, 1862 to 1891.
4. Shipment of Fur-Seal Skins from Lobos Islands, communicated by Mr. Alfred Lafone, M. P.
5. Particulars of Fur-Seal Skins in London Market, from Messrs. C. M. Lampson and Co.

1.—*Average Prices realized for Alaska Salted Fur-Seal Skins at Public Auction in London, furnished by the Hudson Bay Company.*

Year.	Skins.	Price.	Year.	Skins.	Price.
		s. *d.*			*s.* *d.*
1871	104,899	42 2	1882	100,100	53 7
1872	96,283	44 10	1883	75,914	82 9
1873	103,724	52 0	1884	99,994	51 9
1874	99,150	52 6	1885	99,874	57 7
1875	99,634	50 9	1886	99,947	69 3
1876	90,276	34 4	1887	99,949	56 0
1877	75,410	39 11	1888	100,037	77 11
1878	99,911	69 2	1889	100,031	66 11
1879	100,036	84 9	1890	20,994	146 6
1880	100,161	91 5	1891	13,494	125 4
1881	99,921	79 9			

Note.—Previous to 1871 fur-seal skins were sold privately, and it is impossible to obtain correct average prices.

2.—*Statement of Fur-Seal Skins obtained in Trade from Indians by the Hudson Bay Company on the Coast of British Columbia between Port Simpson and the Northern End of Vancouver Island, 1852–90.*

Year.	Number of Skins obtained.	Year.	Number of Skins obtained.
1852	5	1874	1,873
1853	11	1875	1,033
1854	9	1876	1,515
1855	32	1877	1,210
1856	65	1878	1,544
1857	28	1879	1,257
1858	99	1880	1,418
1859	187	1881	1,882
1860	62	1882	3,551
1861	71	1883	557
1862	398	1884	471
1863	569	1885	95
1864	521	1886	1,545
1865	243	1887	102
1866	381	1888	646
1867	768	1889	289
1868	367	1890	228
1869	430		
1870	4,686	Total number obtained in 39 years	39,624
1871	8,911	Average number obtained each year	1,117
1872	1,336		
1873	1,229		

214 3.—*Skins taken for Shipment from Commander Islands, 1862–91.*

Notes.	Year.	Number.	Notes.
Only grey pups killed	1862	4,000	
	1863	4,500	
	1864	5,000	
	1865*	4,000	
	1866	4,000	
	1867	4,000	
	1868	12,000	
	1869	21,000	
Alaska Commercial Company's first term began.	1870	27,500	
Elliott makes catch 3,614, but this doubtless a mistake.	1871	3,412	
	1872	29,318	
	1873	30,396	Including Robben Island.
	1874	31,272	
Stopped killing pups for food	1875	36,274	
	1876	26,960	
	1877	21,532	
	1878	31,340	
	1879	42,752	
	1880	48,504	
	1881	43,522	
	1882	44,620	
	1883	28,696	
	1884	52,652	
	1885	41,737	
Approximate estimate	1886	44,500	
	1887	46,754	Without Robben Island, from which no skins were taken.
Approximate estimate	1888	45,000	
	1889	55,493	
	1890	55,727	Including 1,453 taken on Robben Island.
End of Alaska Commercial Company's lease.	1891	27,467	Including 500 taken on Robben Island.
	Total ...	†872,408	

*1865 to 1891 from official figures obtained by us on Commander Islands.
†The skins obtained by raiders upon Robben Island and on the Commander Islands are not included in the figures above given, which merely represent the annual catch as officially recorded.

Notes on the Killing of Fur-Seals on the Commander Islands.

The facts available for the earlier years after the discovery of these islands are very incomplete, but the following notes may be cited:

In 1751–53, Jugot, among skins brought from Behring Island, had 2,212 fur-seal skins, and in 1752 and 1753 the crew of a vessel belonging to Trapeznikoff, an Irkutsk merchant, took 2,500 fur-seal skins on the same island. ("Neue Nachrichten von denen Neuentdecken Insuln," quoted by Nordenskiöld, in "Voyage of the Vega," vol. ii, p. 270.)

Returns of cargoes of skins from the Commander Islands, quoted by Bancroft (Bancroft's Works, vol. xxxiii, pp. 111–191), show that between 1752 and 1786 (the last year not included) at least 93,708 skins were shipped. Most of these were obtained from the Commander Islands, upon which alone the actual killing doubtless exceeded this figure, probably very considerably. It was not till 1886 that the first skins were taken on the Pribyloff Islands.

Elliott states that he believes there was an interregnum between 1760 and 1786, during which the fur-seals were driven from the Commander Islands, and no skins were taken (Census Report, p. 109). This is, however, manifestly an error, in view of the statements of individual cargoes upon which the above total amount is based, and from which it would appear that the Commander Islands never ceased to produce a certain number of skins. Elliott further states that he does not know when the seals returned, but is "inclined to believe" that they did not reappear in any considerable number till 1837 or 1838. In 1867 the Russians did not think that more than 20,000 skins could be secured on the Commander Islands annually. Since 1867 (to 1880) the capacity of the Commander Islands gradually increased from about 15,000 to 50,000 skins per annum, doubtless because of the careful management of the industry on these islands. (Census Report, p. 109.)

215 4.—*Shipment of Fur-Seal Skins from Lobos Islands, communicated by Mr. Alfred Lafone, M. P.*

Year.	Wigs.	Middlings.	Smalls.	Large Pups.	Middling Pups.	Small Pups.	Extra Small Pups.	Extra Extra Small pups.	Grey Pups.	Rubbed or Tainted.	Total.
1887	256	163	154	558	1,195	5,660	6,488	.....	344	21	14,849
1888	801	255	654	1,489	1,660	7,088	5,915	.....	333	23	17,718
1889	155	134	266	741	1,651	5,955	3,618	93	488	106	13,205
1890	175	175	403	968	1,084	5,901	4,898	.....	502	95	14,244
1891	224	115	867	694	1,093	6,333	3,400	.....	10	40	12,776
Totals ...	1,101	842	2,344	4,450	6,683	30,937	24,319	93	1,677	285	72,789

Total Catch of Salted Lobos Island Seal Skins, 1876–91, communicated by Mr. Alfred Lafone, M. P.

Year.	Skins.	Year.	Skins.
1876	11,353	1884	14,580
1877	13,066	1885	10,862
1878	12,301	1886	14,926
1879	12,295	1887	14,849
1880	14,865	1888	17,718
1881	13,596	1889	13,205
1882	13,200	1890	14,241
1883	12,422	1891	12,776

5.—*Particulars of Fur-Seal Skins in London Market, from Messrs. C. M. Lampson and Co.*

64, QUEEN STREET, *London, May 23, 1892.*

DEAR SIR: We have the pleasure to inclose herewith particulars of fur-seal skins sold in London, for which you asked us when we had the pleasure of seeing you here.

We are, &c.

(Signed) C. M. LAMPSON AND CO.

Sir GEORGE BADEN-POWELL, K. C. M. G., M. P., &c.,
8, St. George's Place.

(A.)—*Salted Lobos Island Fur-Seal Skins sold in London.*

Year.	Skins.	Year.	Skins.
1873	6,956	1884	16,268
1874	8,509	1885	10,959
1875	8,179	1886	13,667
1876	11,353	1887	11,068
1877	13,066	1888	20,747
1878	12,301	1889	8,755
1879	12,295	1890	18,541
1880	14,865	1891	15,834
1881	13,569	1892 (to date)	4,900
1882	13,200		
1883	12,861	Total	247,777

216 (B.)—*Sales of Cape Horn Salted Fur-Seal Skins.*

Year.	Skins.	Year.	Skins.
1876	6,306	1886	909
1877	7,631	1887	2,762
1878	8,227	1888	4,403
1879	12,180	1889	3,021
1880	17,562	1890	2,450
1881	13,164	1891	3,114
1882	11,711	1892 (to date)	3,966
1883	4,655		
1884	6,743	Total	112,208
1885	3,404		

(C 1.)—*Salted North-west Coast Fur-Seal Skins sold in London prior to Pelagic Sealing in Behring Sea.*

Year.	Skins.	Year.	Skins.
1872	1,029	1880	8,939
1873	.....	1881	9,997
1874	4,949	1882	11,727
1875	1,646	1883	2,319
1876	2,042	1884	9,242
1877	.....		
1878	264	Total	64,366
1879	12,212		

(C 2.)—*Salted North-west Coast Fur-Seal Skins dressed and dyed in London (but not sold there) taken prior to Pelagic Sealing in Behring Sea.*

Year.	Skins.	Year.	Skins.
1872	699	1880	4,562
1873	40	1881	5,890
1874	122	1882	11,159
1875	578	1883	6,385
1876	1,062	1884	10,115
1877	772		
1878	2,434	Total	46,215
1879	2,397		

(C 3.)—*Dry North-west Coast Fur-Seal Skins sold in London prior to Pelagic Sealing in Behring Sea.*

Year.	Skins.	Year.	Skins.
1868	2,141	1878	912
1869	1,671	1879	918
1870	684	1880	.....
1871	12,495	1881	686
1872	14,584	1882	321
1873	891	1883	390
1874	2,772	1884	785
1875	1,351		
1876	993	Total	42,767
1877	1,173		

Of the skins sold in 1871 and 1872, a very large proportion were the accumulation of the Russian-American Company, and sold by them after the purchase of Alaska by the United States.

RECAPITULATION.

Salted fur-seal skins sold in London, 1872–84	64,366
" " dressed and dyed in London, 1872–84	46,215
Dry fur-seal skins sold in London, 1868–84	42,767
Grand total	153,348

217 (C 4.)—*Dry North-west Coast Fur-Seal Skins sold in London after commencement of Pelagic Sealing in Behring Sea.*

Year.	Skins.	Year.	Skins.
1885	1,520	1890	699
1886	979	1891	1,083
1887	2,843		
1888	1,252	Total	8,604
1889	228		

Salted North-west Coast Fur-Seal Skins dressed and dyed in London (but not sold there) taken after commencement of Pelagic Sealing in Behring Sea.

Year.	Skins.	Year.	Skins.
1885	16,667	1888	1,930
1886	15,087	1889	2,017
1887	3,589		
		Total	39,290

In addition to the above it is estimated that from 25,000 to 30,000 skins have been dressed and dyed in the United States.

(C 5.)—*Salted North-west Coast Fur-Seal Skins sold in London after commencement of Pelagic Sealing in Behring Sea.*

Year.	Skins.	Year.	Skins.
1885	2,078	1890	38,315
1886	17,909	1891	54,180
1887	36,907	1892 (to date) of catch of 1891	28,298
1888	36,818		
1889	39,563	Total	254,068

RECAPITULATION.

Dry skins sold in London, 1885–91	8,604
Salted skins dressed and dyed in London, but not sold there, 1885–89	39,290
" " United States, estimated, 1885–89	30,000
Salted skins sold in London, 1885–92	254,068
Grand total	331,962

(D.)—*Sales of Alaska Salted Fur-Seal Skins.*

Year.	Skins.	Year.	Skins.
1871	104,899	1883	75,914
1872	96,283	1884	99,994
1873	103,724	1885	99,874
1874	99,150	1886	99,947
1875	99,634	1887	99,949
1876	90,276	1888	100,037
1877	75,410	1889	100,031
1878	99,911	1890	20,994
1879	100,036	1891	17,652
1880	100,161		
1881	99,921	Total	1,883,897
1882	100,100		

218 (E.)—*Sales of Copper Island Salted Fur-Seal Skins.*

Year.	Skins.	Year.	Skins.
1873	22,198	1884	26,675
1874	30,849	1885	48,929
1875	34,479	1886	41,750
1876	33,198	1887	54,584
1877	25,380	1888	46,296
1878	18,686	1889	47,411
1879	28,215	1890	52,765
1880	38,900	1891	59,724
1881	45,209	1892	30,680
1882	30,311		
1883	26,480	Total	761,219

219 APPENDIX (H).

AFFIDAVITS RELATING TO PELAGIC SEALING.

Mr. Milne to Mr. Tupper.

CUSTOMS, CANADA, *Victoria, B. C., January 22, 1892.*

SIR: I have the honour to acknowledge the receipt of your communication of the 7th instant relative to a joint letter from Sir George Baden-Powell and Dr. George M. Dawson, Behring Sea Commissioners.

I beg to state that I have endeavoured to supply the information, and herewith transmit the first lot of affidavits of some of the most reliable of our sealing men, and I am continuing to take all I can obtain, which will be forwarded from day to day.

I trust the information is what is wanted, as I have endeavoured to frame the questions so that the answers would show reasons for their intelligent answers on the three questions:

1. The proportion of seals lost as compared with hit.
2. The proportion of females to males killed in the different months.
3. The abstention of Canadians from all raiding, &c.

I have, &c.

(Signed) A. R. MILNE, *Collector.*

Depositions taken before A. R. Milne, Collector of Customs, Port of Victoria, B. C.

Cereno Jones Kelley, master of the Canadian schooner "C. H. Tupper," of Shelbourne, Nova Scotia, having been duly sworn—

1. *Mr. Milne.* How many years have you been engaged in sealing, Captain Kelley?—A. I have been sealing for two years as master of the "C. H. Tupper."

2. Q. Have your voyages been reasonably fortunate, in comparison with those of other vessels?—A. About an average.

3. Q. Have you gone south of Cape Flattery in hunt for seals?—A. Yes, Sir; and have followed the seals all along the coasts of British Columbia to Behring Sea.

4. Q. During last year, to your observation, were the seals as plentiful from the coast of Shumagin Islands as they were the previous year?—A. I think there was no material difference.

5. Q. Did the seals last year appear to be frightened or more timorous than in previous years on account of the number of vessels?—A. I observed no material difference.

6. Q. In shooting seals, what is your experience?—A. My experience is that unless a seal is mortally wounded—hit in a vital spot—it is practically uninjured, and appears to be as full of vitality as before it was shot. The shot-wounds will rapidly close up, if not made in a vital part, and the seal will swim away as though nothing had happened. The flow of blood stops very quickly, and the seal moves off at a very rapid rate I picked shot from the bodies of seals, previously wounded in other than a vital part, and the animal in every other way appeared to be in a healthy condition.

7. Q. So you believe that a seal when shot, if not mortally wounded, does not sink or seek a place—a rookery, or some place to die?—A. A wounded seal will not alter its course in the slightest. It will go along the same as before, its wounds healing rapidly, very rapidly, too. It is astonishing how quickly such wounds will heal. I once shot a seal which had been speared by Indians, and the spear had made an

apparently mortal wound. There was a cut about 2½ by 3 inches a little above the side behind the flipper. This wound appeared to have been made about three days previously, and in that time it had healed half-an-inch all round.

8. Q. Are there more seals shot sleeping than in motion?—A. I should say that the larger proportion of seals are shot whilst sleeping, that is, as far as my own experience goes.

9. Q. What do you consider the vital part of a seal? Where do the hunters aim for generally—the head or the heart?—A. It depends largely upon the position of the seal. The vital parts are in the head, in the vicinity of the heart, and, if a seal is shot so as to bleed internally, the hunters are sure of securing it. The head is the usual mark.

10. Q. What is usually a safe shooting distance?—A. It depends largely upon the circumstances of the case. Somewhere between 10 and 30 yards would be about the distance. I should say that it is the average with sleeping or travelling seals. The sleeping seal is often approached to within even less than 10 yards, but the average is from 10 to 20 yards for sleeping seal, and from 10 to 30 yards for travellers.

11. Q. The seal is very sensitive, is it not?—A. Yes; we have to approach them from the leeward always. Their sense of smell is very acute.

12. Q. Do the seals generally travel far when wounded?—A. That will depend upon where it is wounded. If it is vitally wounded in the head, it will hardly move from its position, for it is likely to die right there, but it will not sink. This is from my own observation. There is only one way that a seal will sink after being shot, that is, when it is shot in such a manner as to be thrown backwards, sinking tail first, thus allowing the air to escape out of its mouth. I might say, further, that I have never seen a seal sink which was shot while sleeping.

13. Q. Will you state the proportion of seals lost as compared with those hit in sealing?—A. My own personal experience during the past two years is that
220 my loss by seals sinking would not average 3 per cent. During the last year (1891) I actually lost only two seals out of seventy-seven—that is, I shot seventy-nine, and secured seventy-seven.

14. Q. In hunting seals, what is the direction in which they usually travel?—A. In the spring months they are leisurely travelling towards the north, when they change their position.

15. Q. In hunting seals, have you ever met with pups in the water?—A. Not generally; but during the season of 1890, while off Middleton Island, the hunters reported seeing two seal pups, probably a week old, but they appeared to be only just born.

16. Q. What is your opinion of the proportion of males to females killed during the hunting season? Are there any months in the year when there are more females than males killed?—A. It depends upon circumstances. My experience is that groups of bachelor bulls will travel together, and sometimes groups of females, including barren cows, will travel together, and again groups of yearling pups apparently travel together. That is my experience, and the experience of a number of others. The catch of any schooner coming into contact with groups of bulls, or of females, would be no criterion of the catch of other schooners as regards the number of females. In the year 1890, while in Behring Sea, one day we took seventy-five seals, and the next day we took eighty, and in the whole of that number I observed only one female, and the hunters particularly informed me that they did not see any female seals at all; that they were all vigorous young bulls.

17. Q. Would anything lead you to think, Captain Kelley, that there is a likelihood of more females than males being killed between here and Shumagin Islands? That is, from January to June?—A. I can safely say that my personal experience has been on the side of the males, largely—both on the coast and in the Behring Sea the number of seals caught is made up largely of males.

18. Q. Are there any months of the year during which there are more females caught than males?—A. I should say that, as far as my own observation has gone, there is no difference; but in every month, during my voyages, I have had more males than females.

19. Q. Do you know of any Canadian vessels who have raided the seal islands during any year in which you have been engaged in the sealing industry?—A. I have every reason to believe that none of the Canadian fleet have ever raided, or attempted to raid, or made any preparations to raid, any seal islands in the Behring Sea. If any such a thing had happened, I should most certainly have heard of it, and I believe it to be true that the American schooners "George R. White" and "Daniel Webster" did raid these islands, as also the "Mollie Adams." That they did raid the seal islands is a fact well known to all Canadian sealers. I also heard that the German schooner "Adèle" raided the Pribyloff Islands, which action met with the strong disapprobation of every Canadian sealer.

(Signed) C. J. KELLEY.

Sworn to at Victoria, British Columbia, this 22nd day of January, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Before A. R. Milne, Collector of Customs, Victoria, B. C., January 23, 1892.

Captain William Petit, present master and part owner of the steamer "Mischief," having been sworn:

1. Q. (*Mr. Milne.*)—Captain Petit, how many years have you been engaged in sealing?—A. Six years, Sir.

2. Q. Continuously.—A. Yes, Sir.

3. Q. What vessels did you command?—A. In 1886 I commanded the "W. P. Sayward," in 1887 the steamer "Grace," in 1888 the schooner "Sapphire," and in 1889, 1890, and 1891 the "Mary Taylor."

4. Q. Have your catches during these six years been reasonably successful in comparison with other vessels?—A. About an average.

5. Q. You have sealed south of Cape Flattery, have you not, and followed the seals along the coast of British Columbia and into Behring Sea?—A. Yes.

5*. Q. During last year, to your observation, were the seals apparently as plentiful from the coast to Shumagin Islands as they were in previous years?—A. I found them more plentiful last year than I have any year since 1886, that is, Cape Flattery north.

6. Q. How did you find them in Behring Sea?—A. I found them there in Behring Sea as plentiful as in former years.

7. Q. Are the seals now more frightened or more timorous than they have been on account of more vessels, or from any other cause?—A. I have seen no material difference.

8. Q. In shooting seals, what is your experience?—A. My experience is that unless a seal is mortally wounded—hit in the head or in the region of the heart—the shot does not appear to injure it.

9. Q. Do you believe that a seal, when shot, and not mortally wounded, does not sink, or seeks some place to die—a rookery, or some such place?—A. No, Sir; a wounded seal will not alter its course in the slightest. It will move along as before, its wound healing rapidly.

10. Q. What do you consider the vital part of a seal? Where do the hunters generally aim for?—A. For the head or the heart; it depends upon the position of the seal, but usually the head.

11. Q. What is the distance at which you shoot seals?—A. It depends upon circumstances.

12. Q. Are more seals shot while sleeping than in motion?—A. There are more shot sleeping, Sir. It is my opinion that the larger proportion of seals are shot while sleeping. The seals taken by the Indians are nearly all killed while sleeping.

13. Q. What is the shooting distance?—A. It depends upon circumstances; 10 to 20 yards for sleepers, and a little more, 10 to 30 yards, for travellers.

221 14. Q. You have seen the hunters and Indians approach even nearer than 10 yards, have you?—A. Yes, I have seen them approach to within less than 10 feet.

15. Q. When seals are vitally wounded, say in the head, will they move far from the position in which they are shot.—A. No, Sir.

16. Q. They are likely to die right there, are they?—A. Yes, Sir.

17. Q. And they will not sink?—A. With few exceptions, such as when a seal is shot and thrown backwards, thus allowing the air to escape out of its mouth.

18. Q. Will you state your opinion, Captain Petit, of the proportion of seal lost by sinking after being shot?—A. My personal experience during last season with white hunters would not exceed 5 per cent., and with Indians in former years I doubt if it amounts to even 1 per cent. The reason of this percentage in favour of Indians is because they were caught with a spear, and consequently could not get away.

19. Q. Have you ever seen a seal shot while sleeping sink.—A. I have never known one to sink.

20. Q. Then you are clearly of the opinion that seals will not sink for some time unless thrown backwards?—A. I am. When they do sink, even to 10 or 15 feet, they can be reached with the gaff.

21. Q. When the hunters return to the vessel at night, do they usually discuss their day's proceedings, and particularly mention the loss of seals, when such loss occurs?—A. Yes.

22. Q. Then, Captain Petit, you conscientiously adhere to the statement that the loss by sinking of seals hit will not exceed 5 per cent.?—A. I certainly do; but there are seals hit and not mortally wounded, and these escape, but they are not "lost," as they are quite as vigorous as before, because their wounds heal very rapidly. I have often found shot in the skin.

23. Q. What is your opinion of the proportion of females to males killed during the last hunting season?—A. Last year, out of my catch of 765, I had only 18 females carrying young—not quite 2½ per cent. Of course, as in other seasons' catches,

we had a number of barren cows—about the usual run, 10 per cent., and 12½ per cent. of grey pups. These grey pups are always bulls, and one year old.

24. Q. Your catch, then, would be about 75 per cent. of males last season?—A. Yes, Sir; including the yearlings it was more than 75 per cent.

25. Q. You say grey pups are always males; will you explain this?—A. The Indians called my attention to this fact years ago, but the reason is not quite known, still it is a fact. I have observed very closely, and have never yet seen a female grey pup one year old. I try to account for this by the supposition that the yearling grey male pups are driven early out of Behring Sea by the old bulls.

26. Q. Last year, did you hear any remarks about the number or proportion of the males to females caught from any one or any source?—A. Yes, Sir; I heard that a much larger percentage of males were caught last year than in any former year.

27. Q. I would ask you, Captain Petit, if in any former years there was a similar preponderance of males—do you remember of any such fact?—A. Yes, I do. In 1886, when off Barclay Sound, in one day we had taken 104 seals, of which 3 only were females. In the following year, 1887, when off Portlock Bank, we took 79 in one day, and only 2 females were found in that number.

28. Q. How do seal cows travel? Singly or in pairs?—A. They travel singly or in pairs.

29. Q. How do bulls travel?—A. They travel in bands, as do also the bull pups. They travel singly too.

30. Q. Are female seals carrying young very timid?—A. Yes, Sir; they are. They sink their bodies so that nothing but their noses and eyes are out of water, and are therefore smaller marks for the hunters.

31. Q. Barren cows travel with bulls, do they?—A. Yes, Sir; barren cows usually travel with the bulls.

32. Q. Are there any months in the year during which there are more females than males killed? Any particular time that you have observed?—A. No, Sir.

33. Q. Is it your candid opinion that there are more barren cows killed than seal-bearing cows?—A. Yes, Sir; I think there are more.

34. Q. Do these barren cows, from the knowledge you have of seals—do you think that they ever become bearing?—A. I think they do.

35. Q. That they will have periods of bearing?—A. I don't think that a seal will bear before she is 4 years old.

36. Q. How long does a seal carry her young?—A. It is understood to be eleven months.

37. Q. Were there any circumstances occurred to you upon your last voyage which would indicate a marked decrease in the number of seals?—A. None whatever, Sir. On the contrary, I should say there were more. There seemed to be more last year, at least we saw more that year than for several years previously.

38. Q. In your observation as to the habits of the seals, they appear to be like the salmon—that they return from no known cause in larger numbers?—A. Well, I don't know, Sir; I think that they have their annual migrations; but there is question whether they follow the same track every year. You will find them on some grounds one year, and in other years on other grounds.

39. Q. Do you think that the number of female seals killed in the hunt is materially injuring the reproduction of seals?—A. No, Sir.

40. Q. Can you give a reason for that?—A. From the small percentage of females killed, I don't think it would injure reproduction in any way.

41. Q. Were you in Behring Sea last year, and were you ordered out?—A. And was ordered out by the United States ship "Corwin."

222 42. Q. Before being ordered out, what was your usual fishing distance from land?—A. 60 to 100 miles.

43. Q. You found seals all along that distance from land?—A. Yes, in large numbers.

44. Q. You had the prospect of a fair catch?—A. Yes, Sir; I had the prospects of a very fair catch up to the time I was warned.

45. Q. You consider it a very material loss, being warned at the time out of Behring Sea?—A. I do, Sir; I consider it a very heavy loss.

46. Q. You still adhere to the statement that the seals between 60 and 100 miles from land were as plentiful as in any previous years in your experience?—A. As plentiful as they were in any year since 1886.

47. Q. Did you observe in your catch in Behring Sea any preponderance of females over males, or *vice versa*?—A. Yes, Sir; the males were in excess.

48. Q. Can you state from recollection an average day's hunt in Behring Sea?—A. Forty-eight was about the largest I made while in Behring Sea.

49. Q. Do you remember hearing any of the hunters speak of losing any seals by sinking?—A. No, Sir; I don't remember any instances of such loss.

50. Q. Did you cross from the American side of the Behring Sea into the Russian side?—A. No, I didn't; I came straight home to Victoria through Ounimak Pass.

51. Q. During the year, did you hear from any source that any Canadian vessels had raided the seal islands or any of them?—A. No, Sir; I never heard of any British or Canadian vessels, not during the past year, or any year I have been engaged in sealing.

52. Q. Captain Petit, do you believe any of the stories that are told about the "Geo. R. White," the "Daniel Webster," and the "Mollie Adams" raiding these islands?—A. Yes, Sir; I believe those reports.

53. Q. These were all American vessels, were they not?—A. Yes, Sir.

54. Q. During the last two years, it is reported that the American schooners "J. Hamilton Lewis," formerly the British schooner "Aïda," and the "City of San Diego," raided the Copper Islands?—A. Yes, Sir.

55. Q. Do you believe that is true?—A. I do, Sir; and also in 1886 or 1887, the American schooner "Look-out" raided the Pribyloff Islands, so that the history of raiding the seal islands is peculiarly American, and solely by American schooners.

56. Q. Was not the British schooner "Aïda" seized by the American Government and sold?—A. Yes, Sir. In 1887, and renamed the "J. Hamilton Lewis."

57. Q. Is not this same vessel, the "J. Hamilton Lewis," the same vessel as was seized by the Russians this year, in the vicinity of Copper Island?—A. Yes, Sir; and served her right too.

58. Q. If any of the Canadian vessels had raided either the American or Russian seal islands, your long experience in the sealing fleet here would have insured your being aware of it?—A. Yes, Sir; I should certainly have heard of it—learned it from hunters, masters, or seamen. It would have been sure to have leaked out.

59. Q. Is it your opinion that ship-masters or ship-owners have been most careful in instructing their masters or captains to avoid any interference whatever with the seal islands?—A. I have served with different owners, and I have been instructed to carefully avoid approaching the islands within the international limit. In fact, all the sealing I have conducted has been done outside at least of the 20 miles from land.

Mr. Milne.—That will do, Captain Petit. Thank you very much.

(Signed) WILLIAM PETIT, *Master.*

Sworn to before me, at Victoria, British Columbia, this 23rd day of January, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Before A. R. Milne, Collector of Customs, Victoria, B. C., January 22, 1892.

Captain Wentworth Evelyn Baker, present master of the Canadian schooner "C. H. Tupper," and formerly master of the schooner "Viva," of Victoria, being duly sworn:

1. *Mr. Milne.*—How many years have you been engaged in sealing, Captain Baker?—A. Four years.

2. Q. What Canadian schooners have you commanded during those four years?—A. The schooner "Viva."

3. Q. During the four years have you been more than reasonably successful as a seal-hunter?—A. Yes, Sir.

4. Q. How many white men would your vessel usually carry?—A. Twenty-three, all told.

5. Q. You have hunted all along the coast, and also every year in Behring Sea?—A. Every year except 1891. During last year I was always outside of the line of demarcation between Russian and American waters.

6. Q. During last year, to your observation, were seals as plentiful along the coasts to Shumagin Islands as they were the year before?—A. In some places I found them as plentiful; in others I found them more plentiful. In some places where I never found any before I found them last year, and I found none where I had previously found some.

7. Q. Then, Captain Baker, you think there is no material difference, on the average, during the four years? That is to your observation?—A. I should say, to my observation, there was no material difference.

223 8. Q. Your coast catch last year was equal to that of former years, was it?—A. It was equal to the first two years, and better than the third year by almost as many more skins, having 698 skins in 1890, and in 1891 I had 1,260 skins.

9. Q. Owing to the number of vessels, do the seals appear to be more timorous?—A. Well, I did not find them so, except in some places. It is a great deal owing to the position in which you find them. I found that the nearer the coast the wilder they are, and the further at sea you go they don't seem to be any wilder than previously. I think that what makes them wilder along the coast is the increase of traffic, steamers and so on being very numerous.

10. Q. It is said that seal travel in groups of females and groups of bachelor bulls and young bulls—not mixed. Is that so?—A. I have always found it so.

11. Q. So you think that the number of male or female seals caught would depend entirely upon the schooner falling in with groups of males or females?—A. Entirely.

12. Q. How is that?—A. It is much harder to keep the run of females than of the males or barren cows. Females with young appear to be much more timid, and when you get among them and commence shooting, they disappear very quickly, and show only the nose and eyes above water when travelling, and do not expose their bodies as much above the water as the bulls and barren cows do, as if the maternal instinct to preserve their young was apparent. This fact is well known to all seal-hunters. I have often been in a group of cows with pups during the afternoon, and at night they would all disappear, and, apparently from maternal instinct, they will travel away as quickly as possible.

13. Q. Do you consider it more difficult to shoot females, so little exposed as they are, than males?—A. It is decidedly more difficult, particularly on the coast.

14. Q. You have observed a number of barren females?—A. Yes; quite a [?].

15. Q. How do they travel?—A. Usually by themselves, or mixed with bulls; I have never found a cow with pups among the bulls.

16. Q. Have you any idea what the percentage would be of the number of barren cows to the number of seals caught?—A. I could not say exactly, but the percentage is considerable.

17. Q. What is the accepted theory among the sealers as to the barrenness of cows?—A. I don't know as I have heard of any theory—unless they are like other animals.

18. Q. When you speak of barren cows, you mean those who have been more than one season barren?—A. Yes; because before that they are called pups. The barren cows are those who are old enough to have pups, but didn't.

19. Q. You are quite of a clear opinion, then, Captain Baker, that there is a considerable percentage of barren cows?—A. Yes, Sir.

20. Q. Are there more seals shot whilst sleeping than in motion?—A. Yes, Sir; my experience has been that there are more seals shot whilst sleeping, and that is the experience of most of my hunters, by their report.

21. Q. What do you consider the vital part of a seal?—A. The head or the heart, or in the neck.

22. Q. Do your hunters prefer to shoot the seal in the head?—A. Yes, Sir; on account of preserving the skin, and also that, the moment the seal is shot in the head, the head sinks and the wind cannot escape. Then, if the seal is not killed, the shot will stun it, and its head will drop below water, so that it cannot sink.

23. Q. What is usually a safe shooting distance?—A. For sleeping seals the distance would be about 10 yards, and for travelling seals the distance would be about 10 to 30 yards.

24. Q. Considering that the seals are shot in the head, and the greater portion whilst sleeping, will you state the proportion of seals lost, as compared with those hit, in sealing?—A. The proportion is very small, because, as the usual distance for shooting is about 10 yards for a sleeping seal, we most always kill them instantly, and being so near the seal—even if they are inclined to sink—they are gaffed before they have time to sink. If they even did sink 15 feet, say, we could catch them, as when sinking they go very slowly. The only time I know of when a seal is likely to sink is after it has been chased around in the boats and winded, then shot again, so as to be thrown backwards, allowing the wind to escape from its mouth, when it sinks tail first. Every boat is supplied with a long pole, about 15 feet, and a spear and gaff on the end, so that we can reach that distance. It is very seldom that a seal will get away. I would say, therefore, from personal experience that the percentage of loss, as compared with those hit in sealing, would not exceed 3 per cent. Last year I killed, myself, on the coast, fifty-five seals, and out of that number I lost only one by sinking.

25. Q. As a general thing, is the percentage of loss more now than it was four years ago, or is it smaller?—A. From personal experience, I think about the same, and from the reports of the hunters I should judge it was the same, as they all report their experiences on their return to the vessel each night, and when a seal is lost it is always spoken about. From a record kept by hunters during two voyages the aggregate loss by each hunter is shown, and the percentage is not greater, on an average, than 3 per cent.

26. Q. How many hunters do you usually carry?—A. Six; and I hunted myself. The ship's company consists of twenty-three persons.

27. Q. What size shot do you use in shooting seal?—A. No. 2 buck-shot or "8" Canadian shot; and the guns are of the very best material and very expensive, costing from 70 to 100 dollars.

28. Q. What do you think is the proportion of females to males in the number killed in the different months of the fishing season?—A. I don't know, I am sure.

It depends upon circumstances. My experience last year was very largely on the bull side on the coast; that is, the proportion taken were largely male seals. I can conscientiously say that it must have been three bulls to one female, and I had a larger number of seals than any other vessel on the spring catch.

29. Q. In the Behring Sea, to your observation, were the males or females in the preponderance?—A. My experience is that they are very much as they are on the coast. Sometimes I would meet with groups of all bulls, and again with groups of all cows.

224 30. Q. While in Behring Sea last year what would be your usual sealing distance from the land?—A. I was not in Behring Sea last year, but in previous years it would be from about 30 to 90 miles from land. The usual distance is about 60 miles. Sometimes we are inside of that, sometimes outside of it.

31. Q. Last year, I understand you to say, Captain Baker, you were not in the Behring Sea on the American side?—A. No.

32. Q. Do I understand you to say that on the Russian side the same observations will apply to the habits and shooting of seal as on the coast?—A. Precisely the same as to their grouping and habits.

33. Q. During the four years that you have been sealing, Captain Baker, I would like you to state explicitly if you saw or heard of any Canadian vessels raiding the American seal islands?—A. No, Sir. To my knowledge I have never heard of any, and I have every reason to believe that there has never been any Canadian schooner raiding any of them.

34. Q. If anything like this had happened, you would have heard of it?—A. Most certainly I would have.

35. Q. You have never heard any information of any of our sealers conniving to raid the seal islands?—A. I never did.

36. Q. Two years ago it was reported that some American schooners had raided seal islands. Did you hear such a report?—A. Yes, Sir; I heard a report that certain American schooners had raided these islands. The "Geo. R. White," "Daniel Webster," "Mollie Adams," and for two years the "J. Hamilton Lewis," have been raiding the Copper Islands on the Russian side, and it is reported that the American schooner "City of San Diego" also raided the Copper Islands last year.

37. Q. You have heard of the German schooner "Adèle" raiding these islands?—A. Yes; in 1889, with poor success. These illegal acts meet with the strong disapprobation of every Canadian sealer.

38. Q. And if Canadian sealers had done acts of that kind, you think it would most certainly have leaked out?—A. It most certainly would have.

39. Q. You are quite satisfied, then, that not a single Canadian schooner at any time has raided the seal islands?—A. Not to my knowledge. I don't know of one single case.

40. Q. What was your entire catch last season?—A. 1,991 for the whole season.

41. Q. Giving your opinion in confidence, what is your opinion of the seals on the coast and in Behring Sea? Are they decreasing or increasing?—A. From my experience, I have not seen any decrease, but I have noticed also that they change their grounds from time to time, and where you find them this year you may not find them the next. This was very remarkable during the year 1890, for the seals were all found to be eastward of Pribyloff Islands, while in former years they were found to the westward.

42. Q. When did you find them to the eastward of St. Paul's Island? I understand you to say that you found them very numerous?—A. More so than I ever did before.

43. Q. Have you any opinion to offer as to the return of the seals to the coast last year?—A. I have no direct opinion, but certainly the seals were more plentiful on the northern coast last year than the previous years.

(Signed) W. E. BAKER, *Master.*

Sworn to before me, at Victoria, British Columbia, this 22nd day of January, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

January 19, 1892.

Clarence Nelson Cox, master of the schooner "E. B. Marvin," of Victoria, examined by Collector Milne:

1. Q. What vessels have you commanded on this coast and in Behring Sea, Captain Cox?—A. I have been two years master of the "Triumph," and one year mate of the "Sapphire" with my brother.

2. Q. This makes your fifth or sixth year?—A. This makes my fourth year. I was in Behring Sea so late last year; that is probably why it may seem I have been out oftener than others.

3. Q. The inquiry, Captain Cox, is to elicit, first, the number of seals lost by being hit. It is alleged that you lose a large proportion of those that are shot, and we wish to get at the facts. Also to establish the number of females caught during the last and previous years, and also to investigate if there were any Canadian sealers raiding the seal islands. In the spring of the year, when you leave port, you go down to meet the seals along the coast?—A. Yes.

4. Q. I have been given to understand that the seals travel in bands?—A. Yes; all the cows together, and all the bulls together, and the grey pups together.

5. Q. I suppose they are quite distinctly separated?—A. Yes; we get the grey pups closer to shore, always inside of the large seals.

6. Q. As a matter of fact you do not find many female seals bearing young travelling with the bull seals?—A. I have never seen them in company together. I have found the barren cows and bulls in company.

7. Q. This separation is from natural selection, or instinct?—A. Yes; while carrying their young they are never found with the bulls. The barren cows occasionally do travel with the bulls.

8. Q. During what months have you found more females carrying young as compared with other months of the sealing season?—A. In the winter, when we first go out—February, March, and April.

225 9. Q. That is, both bearing cows and barren cows, too?—A. No; bearing cows. There are also grey pups about at that time.

10. Q. What do you mean by "grey pups"?—A. The yearling seal. After that it is called a "brown pup," then a "two-year-old."

11. Q. Along the coast, from the time you strike them in the spring, do you shoot the larger proportion of the seals sleeping, or are there more shot while travelling?—A. Yes; the larger portion of the seals killed during the season are shot while sleeping.

12. Q. You say you find the bearing cows travelling continually?—A. If the weather is rough, they are travelling, but if fine, they are usually seen sleeping or resting.

13. Q. Is it a fact that the females with young swim low down in the water?—A. Yes; the bulls and barren cows keep their heads well up, looking around.

14. Q. When you come upon a group of seals, your catch, then, will depend upon whether the group is composed of males or females?—A. Yes; very much.

15. Q. As a matter of experience, Captain Cox, have you come upon more groups of males than of females during the last year, say?—A. I have caught more bulls the last season—a great deal more. I had 848 seals coming up the coast before entering Behring Sea, and of these about 75 per cent. would be males.

16. Q. Have you any private opinion as to the reason of this preponderance of the males last year as compared with previous years?—A. I cannot account for it. In fact, I could hardly advance any idea of the cause. I get the most of them from Queen Charlotte Island coast northwards.

17. Q. You think, though, with some of the other sealers, that at about May the cows are well in advance, going to Behring Sea, to the breeding grounds, consequently the males would be left behind?—A. That is the only reason I can see for it, because we get very few females "with pup" in May.

18. Q. What do you consider a sufficient shooting distance, that is, sufficiently close range for sleeping seals?—A. A great many are shot inside of 15 yards. I think about 15 yards.

19. Q. As a professional sealer, what is your honest and candid opinion about the percentage of seals lost, that is, the number lost after being hit—those that sink?—A. With the Indian hunters it would not amount to one in a hundred. They kill with the spear, and I know it would not amount to 1 per cent. I was only one season with Indian hunters. Last year I had Whites. I do not think the loss would be more than 4 or 5 per cent. with shooting by the white hunters.

20. Q. The spear of the Indian sealer is barbed, is it not, and fastens in the animal?—A. Yes, it has two barbs and a line attached, so that they are sure of their seal unless their line breaks, or the spear is not stuck in far enough to hold, neither of which happens often.

21. Q. You can quite confidently state that the loss of seals killed by white hunters would not exceed 4 or 5 per cent.?—A. I can.

22. Q. This you base upon your own personal knowledge?—A. Yes.

23. Q. How many of a crew do you carry on your vessel?—A. Six boats, that is, six hunting boats and a stern boat; seven in all.

24. Q. Your ship's company would be how many?—A. Twenty-three men.

25. Q. And the number of hunters?—A. Six hunters, or, counting the stern boat, seven hunters.

26. Q. Your catch last year was how many skins?—A. On the coast 848 skins.

27. Q. Of that number how many would be breeding seals?—A. I do not think there would be more than 15 per cent.—about 126 female skins.

28. Q. What percentage of them would be barren female skins?—A. About 10 per cent.

29. Q. Is the percentage of bearing cows greater than that of barren cows?—A. Yes; every year in my experience there have been more bearing cows than barren.

30. Q. About 15 per cent., then, would be bearing cows, and 10 per cent. barren ones?—A. Yes.

31. Q. You stated that it would entirely depend upon the groups you struck along the coast whether you got males or females?—A. Yes.

32. Q. And you base your figures upon four years' experience?—A. Yes.

33. Q. Then you know the percentage of bearing cows would be 15 per cent., and the barren cows 10 per cent?—A. Yes. The first year I was with my brother I believe we had not more than 10 per cent of cow seals; one of our seasons we had at least 90 per cent. bulls.

34. Q. That statement applies to Behring Sea?—A. Yes.

35. Q. What year was that?—A. 1889, when I was with my brother as mate of the "Sapphire." The catch on the coast up to Behring Sea was about 90 per cent. bulls.

36. Q. In the Behring Sea, what percentage of females had you, as compared with males—I am told there are less bulls?—A. I think the percentage of bulls in Behring Sea is less than on the coast.

37. Q. Bachelor bulls?—A. Yes. The greater percentage would be cows—bearing cows; after they have dropped their young we don't get them in Behring Sea.

38. Q. Do you not find a lot of bachelor bulls hovering about the outskirts of the groups of seals?—A. Yes, we get some, but there are more females in Behring Sea.

39. Q. Did you find it so last year?—A. Of course, I was not in Behring Sea long enough to know.

40. Q. Your remarks, then, would not apply to last season?—A. No.

41. Q. You think there would be about an equal number of cows and bulls in Behring Sea?—A. Yes; I think that the bulls and cows are about equally divided.

42. Q. It is well known among sealers that the old bulls keep their herds, and drive the "bachelor" bulls off?—A. Yes.

226 43. Q. Do you find many groups of bachelor bulls in Behring Sea?—A. We do not find them so much in groups as on the coast.

44. Q. Taking your whole catch for the past year, skin for skin, what percentage of females had you?—A. We had not more than 25 per cent. barren and bearing cows. That would leave us about 75 per cent. bulls.

45. Q. 25 per cent. females, including barren cows?—A. Yes.

46. Q. In the years before last would that percentage hold good?—A. I think the previous years would not differ very much.

47. Q. In the months of February, March, and April, you think that the females killed are more numerous than in Behring Sea?—A. I think so. We get a good many more grey pups in the winter.

48. Q. Among all the hunters it is pretty well known that the average of loss by being hit would not exceed 3 to 5 per cent.?—A. Yes; that is well known.

49. Q. Wounding a seal so that it escapes, you don't consider that lost?—A. No; they carry a lot of shot, and the hunters don't just shoot at it and leave it if it does not die on the spot, but give chase, and if wounded badly it has not much chance of getting away.

50. Q. Considering the hazardous occupation of sealing, the men get very expert in it?—A. Yes; I have a man aboard who does not lose five seals during the whole season.

51. Q. Is it your opinion that the female seals with young are somewhat timid, and more on the alert than the old bulls?—A. Yes; they are.

52. Q. That is one reason why the percentage of females is so small, I suppose?—A. Yes.

53. Q. In Behring Sea you say the percentage of loss would be more than on the coast?—A. I think the percentage of loss in Behring Sea is less than on the coast, because the sealers get more seals asleep in the sea. They seem to be right at home there, and not travelling about so much.

54. Q. Have you at any time known any of our vessels (that is, Canadian vessels), registered Canadian vessels, landing on the seal islands for the purpose of raiding and killing seals? A. I can conscientiously say that I have never known of any of our vessels landing there.

55. Q. And have never heard our masters or sailors encourage that sort of practice?—A. No.

56. Q. Have you heard of any vessel having done so?—A. Yes; I have.

57. Q. What vessels?—A. The "Mollie Adams," "George R. White," and the "O. S. Fowler," of San Francisco, I heard, raided the Pribyloff Islands.

58. Q. That fact is well known to the whole fleet?—A. Yes, Sir.

59. Q. You were not in Behring Sea last season?—A. I was in, but didn't stay long; I was ordered out of it.

60. Q. You left as soon as ordered to leave?—A. I did; came direct home.
61. Q. Who warned you?—A. The British steamer "Pheasant."
62. Q. You didn't try to seal after that?—A. No.
63. Q. Or lowered your boats?—A. I didn't lower any boats after receiving the order.
64. Q. You have heard of some American schooners raiding Copper Island?—A. I have.
65. Q. Do you know the McLean brothers?—A. Yes; and the "City of San Diego" here, and the "Webster" and "J. Hamilton Lewis," three American vessels who raided Copper Island.
66. Q. You have no idea of why the seals were more plentiful along the coast last year than other seasons?—A. I have no idea.
67. Q. There has been no practical theory advanced as to why last year the seals were more plentiful close in shore than in other years?—A. I have none, except that it is on account of their food fish. The seal follows the food. The earlier those fish strike along the coast, and the closer in shore, the earlier and closer to the coast we get the seals.

(Signed) C. N. Cox.

Sworn before me, this 18th day of January, A.D. 1892.
(Signed) A. R. Milne, *Collector of Customs.*

Captain Alfred Bissett, master of the Canadian schooner "Annie E. Paint," of Victoria, British Columbia, being duly sworn, says:

20. *Mr. Milne.*—How many years have you been engaged in sealing?—A. Two years; this is my third year—have been master, mate, and hunter.
21. Q. You have had about average luck?—A. Yes; about the average.
22. Q. You have followed the seals from south of Cape Flattery north, haven't you?—A. Yes, Sir.
23. Q. During the last year, to your observation, were the seals as plentiful along the coasts as they were the previous years?—A. They were.
24. Q. Did the seals appear more frightened than usual?—A. I think not; I noticed no difference.
25. Q. Did you notice last year, or any year, in hunting seals, that the cows travel together by themselves, and the bulls by themselves, in herds?—A. I did notice that the bulls, in a general way, travel together, and the cows together, and small seals—as a rule, pups—travel together.
26. Q. When hunting, of course, if you struck a band of bulls the catch that day would be principally bulls?—A. Yes; principally bulls.
27. Q. Do you think more seals are shot while sleeping than when in motion?—A. Oh, yes; far more; about 80 per cent., I think.
28. Q. What do you consider a safe shooting distance for a sleeping seal?—A. For a sleeping seal about 20 to 30 feet is a sure distance.

227 29. Q. And when they are on the move, what is the distance?—A. Well, from 25 to 30 yards.

30. Q. What is your opinion of the proportion of seals that are lost after being hit?—A. I think from 3 to 5 per cent. would cover everything.
31. Q. Where do you aim for in shooting a seal?—A. I aim for the head.
32. Q. So when a seal drops his head down, the air is stopped from escaping?—A. Yes; that is the reason we shoot in the head.
33. Q. During last year did you notice the proportion of females to males killed?—A. From counting the skins, and noticing the seals coming on board the ship, I I should form 75 to 80 per cent. were bulls, and the remainder females.
34. Q. Do you know the reason of that?—A. I don't know, unless the cows travel a little faster than the bulls, who follow the coast. I have always noticed that there are more bulls killed on the coast than there are females.
35. Q. Have you ever noticed when the number of females predominate?—A. I hardly know, but I have noticed that during the months of March and April that there were more cows than males than in the months of May, June, and July.
36. Q. Can you form any idea, from what you have heard, whether there are more females killed than males?—A. I should say that there are decidedly more males. That is from what I have heard and seen myself. There is no doubt that the low price obtained in London this year is due to the large number of small bull skins taken, the skins of the females being larger and better.
38. Q. During the two years that you have been engaged in sealing have you ever known any Canadian vessel to raid any of the seal islands?—A. No, Sir.

39. Q. If there had been any such thing going on, it would have leaked out?—A. It would certainly have leaked out, and I would have heard of it. It is almost impossible to keep it quiet.

(The above having been carefully read over to Captain Bissett, he corroborates and substantiates the same.)

(Signed) ALFRED BISSETT.

Sworn before me at Victoria, British Columbia, this 18th day of November [*sic*], 1892.
(Signed) A. R. MILNE, *Collector of Customs.*

January 19, 1892.

Captain Theodore M. Magnesen, in command of the schooner "Walter A. Earle," of Victoria, examined by Collector Milne:

1. Q. How many years have you been sealing in Behring Sea, Captain Magnesen?—A. Three years; this will be my fourth.
2. Q. You have had very good success last year?—A. Yes; very fair success.
3. Q. Did you notice last year any perceptible decrease in the number of seals compared with previous years?—A. I think they were more plentiful last season than I ever saw them before.
4. Q. Do you mean in Behring Sea?—A. Yes; both along the coast and in the Sea. The biggest catch I ever made was last year, on the coast as well as in the Behring Sea.
5. Q. You have noticed the habits of the seals—how they travel?—A. They travel in batches, the bull seals by themselves, and the cow seals by themselves, and the yearling pups by themselves.
6. Q. As a matter of fact, are there more seals shot while sleeping than while they are travelling?—A. That is hard to say; but I think there are just as many shot while moving as there are sleeping seals.
7. Q. When you shoot seals by sleeping, what is the safe shooting distance?—A. About 25 yards.
8. Q. And when travelling?—A. About 45 to 50 yards.
9. Q. The usual mark you shoot at is the head of the seal?—A. Yes.
10. Q. When hit in the head, the seal does not sink?—A. No; sometimes he does, though, if he is shot when short of wind at the moment, and he will sink if you are too far away to pull it out.
11. Q. You have noticed them sinking?—A. Yes; they generally sink tail first.
12. Q. If the seal is shot in the head, he drops his head, and that confines the breast, and it floats?—A. Yes; that is the way I have accounted for them floating.
13. Q. How many seals, in your experience, do you think a hunter loses out of say, 100 shot at?—A. I know my head hunter killed 498 seals last year, and 17 of them sunk.
14. Q. That would be about 3½ per cent?—A. Yes.
15. Q. Do you consider that a fair average on the number of seals lost?—A. As an experienced hunter, I think it is a fair average.
16. Q. Would you say that a man who loses, say, 5 per cent of the seal he shoots would not be an experienced hunter?—A. He could not lose more than that.
17. Q. Will that percentage of loss apply to the travelling seals as well as to the sleeping seals?—A. Yes, the most of the seals lost are the ones shot by the ones moving or travelling.
18. Q. Your boats carry pole, spear, and gaff?—A. Yes; and if the seal sinks down 10 or 15 feet they are easily recovered.
19. Q. If you were on your oath, now, and heard any one say that for every seal that was killed, male or female, one was lost, you would say it was a misstatement?—A. Yes; that is not so.
20. Q. If any one came here and said that for every seal you hit you killed another seal——?—A. That is nonsense.
21. Q. The highest percentage of loss, you say, would be 5 per cent. for
228 sinking seals?—A. Yes; and I may say that I have taken seals with shot in them, dropped out when skinning, and they seemed as strong and healthy as ever.
22. Q. That is to say, that unless you shoot a seal in a vital part, the wound heals quickly?—A. Yes; and unless you hit it hard the seal gets away.
23. Q. You have seen females with young?—A. No; I never saw them carrying their young in the water.
24. Q. Down the coast the seals are pretty well divided, are they not?—A. Yes.
25. Q. The cows travel by themselves, and the bulls by themselves?—A. Yes.
26. Q. Did you say that you have caught more bull seals than cow seals during the season?—A. Yes, along the coast; but when I got up and up I got more bulls than cows,

27. Q. What months have you seen more cows in proportion than other months?—A. In February, March, and April.

28. Q. But even when you see more cows the average of the seals killed is in favour of the bulls, is it not?—A. No; it is about equal.

29. You say the cows travel quicker towards the Behring Sea?—A. Yes; when we get further up the cow seals seem to leave the bulls behind.

30. Q. Has it always been so?—A. Yes; I have got 181 seals in a day, and not a cow amongst them, but you sometimes get one. I think the average is about 1 in 90.

31. Q. You always get more bulls than cows?—A. Yes, up there.

32. Q. How many out of every hundred seals you had on board your vessel last year would be females?—A. I think fully a half of them would be cows.

33. Q. How many of them would be bearing cows, and how many of them would be barren cows?—A. Of bearing cows, I think about 18 or 20 per cent. would be bearing cows. I do not think there would be so many as that. I had 2,000, and I think there would be only about 12 or 14 per cent. with pups; the others would be what are called barren cows, and a lot of them would be dry cows.

34. Q. With the barren cows and the ones bearing young you say would make up about half your catch?—A. Yes; about half and half.

35. Q. The proportion of males and females, though, depends upon the crowds or groups you get into?—A. Yes; it depends upon the band you strike.

36. Q. You never, at any time, had more females than males in any of your catches?—A. No; never.

37. Q. While in Behring Sea during the last four years had you ever heard of any Canadian schooners "raiding" the Pribyloff Islands?—A. No. I never heard of any of my crew being engaged in such. Several of my crews told me of the American sealers raiding them, but I never heard of a Canadian vessel doing so.

38. Q. If you were bound to make a statement on your oath, you would say you believed no Canadian vessels ever raided the Pribyloff Islands for seals?—A. Not as far as I know.

39. Q. You believe, as a matter of fact, that the owners of Canadian sealers and their masters have never countenanced this raiding?—A. I believe that is the feeling that prevails among them all.

40. Q. You have heard mentioned the names of the American vessels that raided those Islands?—A. Yes; I heard of the "Mollie Adams" and "George R. White," but not any others.

41. Q. You have not heard of any others?—A. No; I have not heard of any others.

42. Q. You have heard of vessels raiding the Copper Islands?—A. Yes; I have heard of the "Hamilton Lewis" and "Webster" raiding Copper Island.

43. Q. Those vessels you name are all American vessels?—A. Yes.

44. Q. Manned by American crews?—A. Yes.

45. Q. Have you any recollection of seeing any of those vessels in this (Victoria) Harbour?—A. No.

(Signed) THEO. M. MAGNESEN.

Sworn before me, this 23rd day of January, A. D. 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Henry Crocker, hunter on board the schooner "Annie E. Paint," having been sworn:

65. Q. How long have you been engaged in sealing?—A. I have been hunting now for three years; this is my fourth.

66. Q. From your observation, do you think that the seals were as plentiful last year as they were during the previous seasons?—A. Yes; from what I saw of them I am sure they were just as many as before.

67. Q. In what months do the female seals seem to be the most plentiful in the sealing grounds?—A. I believe that from February to May the females seem to predominate in numbers; that is, when the cows are getting heavier with young, they make for the Islands sooner than the bulls.

68. Q. Is it more difficult to shoot a female seal than it is a bull?—A. The males are more easily killed than the females, owing to the inquisitiveness of the males, and the females being more shy, and also as they move along the water with only their nose visible.

69. Q. As an experienced hunter, what percentage of loss have you had by seals sinking?—A. It is very rarely that a seal will sink. I have been a whole season and have not had more than half a dozen sink during the whole season.

70. Q. Can you form any estimate of what your loss has been?—A. I would say not more than 3 or 4 per cent.

229 71. Q. Was the loss last year more than in previous years?—A. I could see no difference.

72. Q. As a reason for the small percentage of loss, you get very near the seals before shooting?—A. Yes, Sir; the usual distance is within about 20 feet to the sleeping seal.

73. Q. If a man has a higher percentage of loss than that, he must be careless, you think?—A. Yes, I should say so, and not a first-class hunter, for there is no necessity for losing a seal.

74. Q. Does your percentage of loss agree with other hunters with whom you have conversed?—A. Yes.

75. Q. So that on the coast and in Behring Sea the same percentage would apply?—A. Well, on the coast one does not very often sink a seal; but in Behring Sea, if a cow, having delivered her pups, is shot, she will be more apt to sink, as the blubber is very much thinner. But, on the whole, I think the percentage will not be more than 3 or 4 per cent. of loss.

76. Q. Have you taken notice in hunting whether there are more females than males, or the reverse, taken?—A. There is fully 80 per cent. of bull seals killed off the coast, as well as in Behring Sea. I think the reason for this is that the younger bulls are driven off by the older ones, who guard their particular herds.

77. Q. In the three years you have been in Behring Sea has it always been your experience that there were more males caught than females? And in what proportion?—A. I say about the same as this year; I don't see any difference.

78. Q. Does your percentage of females taken agree with that of other hunters with whom you have conversed?—A. Yes.

79. Q. As an experienced hunter, then, you adhere to the statement that for the whole season's catches for the years you have been hunting, that the percentage of seals caught will be about three males to one female?—A. Yes; about that.

80. Q. Do you include in that statement barren cows?—A. Yes.

81. Q. Have you any idea or reason of your own why the males come to predominate so much?—A. I think it is because the females make for the islands earlier than the young bulls and barren cows.

82. Q. Have you ever heard of any Canadian vessels raiding the seal islands?—A. No, Sir.

83. Q. You have never heard of any Canadian master or owner offering any inducement to hunters to raid the islands?—A. No, Sir.

84. Q. There has never been any bonus offered you to raid the islands?—A. No, Sir; while in Behring Sea we are always too anxious to get away from the islands.

85. Q. If any Canadian vessels had raided the islands you would have likely heard of it?—A. Yes. I think it is impossible to keep it as quiet as that.

86. Q. You have heard of American vessels raiding the Copper and Pribyloff Islands?—A. I have heard it. I have known of the American vessels going into Sand Point just after they had raided the islands, and I was in Sand Point when one vessel was fitted out for the purpose of making a raid.

87. Q. The masters with whom you have sealed all seem to have avoided the islands?—A. Oh, yes; they keep away from the islands between 50 and 100 miles.

(The foregoing having been read over to the said Henry Crocker, he corroborates and substantiates the whole of the said statements.)

(Signed) HENRY CROCKER, *Hunter.*

Sworn to before me, at Victoria, British Columbia, this 18th day of January, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

George Roberts, hunter on board the schooner "Annie E. Paint," being duly sworn, says:

55. Q. How long have you been engaged as a sealer?—A. I have been at seal-hunting for three years, one season as a hunter.

56. Q. Were the seals more plentiful last year than in previous years?—A. They were just about the same as regards number.

57. Q. How do the seals generally travel—in mixed numbers, males and females together?—A. The seals travel in bands of bulls and bands of cows, both by themselves.

58. Q. What is the proportion of seals lost by sinking after being shot?—A. Well, I should say that 3 to 5 per cent. would cover the whole loss. It is not more.

59. Q. What is the distance you are off a seal when you shoot, generally?—A. Well, from 20 to 30 feet for a sleeper, and for a traveller from 25 to 30 feet.

60. Q. What part of the seal do you aim at?—A. I aim at the head, as the best place, being the surest.

61. Q. Do you think there were any more female seals shot than males last year?—A. No; I think there were more males shot; in fact, I think that since I have been engaged in the business there have been more males killed than females.

62. Q. What months have you noticed more females than males?—A. In the months of March and April there are more females than at any other time. There are more females killed during those months than there are any other time.

63. Q. Have you ever heard of any of the Canadian vessels poaching on the seal islands?—A. I never did; I would have heard of it if there had been any. I have heard of the American raiders; but I do not know of a single Canadian vessel raiding a seal rookery.

230 64. Q. If a seal is sinking, does it go quickly or slowly?—A. If it is not too far away it can always be secured, as it does not go too quickly to get it.

(The above having been read to the said George Roberts, he corroborates and substantiates all of the foregoing statements.)

(Signed) GEORGE ROBERTS, *Hunter.*

Sworn to before me at Victoria, British Columbia, this 18th day of January, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Richard Thomson, hunter on board the schooner "Annie E. Painter," being duly sworn, says:

40. Q. How long have you been engaged in sealing?—A. I have been engaged as a hunter for two years.

41. Q. Were the seals as plentiful last year as they were the previous year, to your observation?—A. Yes; I believe they were.

42. Q. Were the seals apparently harder to approach than they were in previous years?—A. No; I can't say that I saw any difference.

43. Q. How do the seals generally travel?—A. As a rule the bulls travel separately, and quite a distance apart generally.

44. Q. What is your experience in hunting as to the number of seals lost after being hit?—A. I should think from 3 to 5 per cent. would cover all.

45. Q. What is the usual manner in which seals are lost?—A. Well, if the seal is in a certain position and shot so as to allow the air to escape, the seal will be lost. As long as the head sinks below the water first, the seal will not sink. They very rarely sink in any case.

46. Q. You carry a spear on a gaff, don't you?—A. Yes; it is carried to spear the seals when they are going down.

47. Q. From your experience in sealing, you consider that from 3 to 5 per cent. would cover the total loss of seals, after being shot, through sinking?—A. Yes.

48. Q. When you shoot a seal at a distance, and do not shoot them in a vital part, they make off, do they?—A. Yes.

49. Q. You don't consider that lost, then?—A. No; we don't consider the seal lost unless it sinks.

50. Q. Have you handled more males than females during the past two years?—A. I should say more males.

51. Q. Have you any idea of the proportion of males—would there be two males to one female?—A. I should say from 70 to 80 per cent., or about three males to one female.

52. Q. In what months do you consider that there are most females killed?—A. During the months of April and May. There are apparently more females, but not as many as males.

53. Q. You have never known of any Canadian schooners raiding the seal islands, have you?—A. I have never heard of a Canadian, but I have of the American.

54. Q. During the time that you have been to Behring Sea, you would have heard of it?—A. I would certainly have heard of it.

55. Q. You have always sailed out of this port?—A. Yes, Sir.

(The above having been read over to Richard Thomson, he corroborates and substantiates the same.)

(Signed) R. THOMSON, *Hunter.*

Sworn to at Victoria, British Columbia, before me, this 18th day of January, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Victoria, B. C., January 22, 1892.

Andrew Laing, called and examined by Collector A. R. Milne:

1. Q. You are one of the oldest seal-hunters in the province, Mr. Laing?—A. I have been ten years at it.

2. Q. Your knowledge of sealing really goes beyond the present knowledge of the average sealer?—A. I have had as much experience as any of them. I think I know as much as any of them.

3. Q. Your observations on the west coast extend beyond the advent of the sealing business in Behring Sea?—A. Yes. I went on the coast in 1871, and have been sealing with natives for the last twenty-one years.

4. Q. You had ample opportunity of observing the life and habits of the seals?—A. Yes.

5. Q. From those observations last year did you notice any perceptible or material decrease in the number of seals?—A. None whatever.

6. Q. It was generally reported last year they were more numerous than the year before?—A. Yes. I think, if anything, they were a little more numerous than 1890.

7. Q. Does that remark apply to full-grown?—A. To full-grown and mid-sized.

8. Q. What direction do the seals on the coast usually come from?—A. They come from the south, following the herring, which spawn on the west coast and different places, and the seal follow those fish into the shore or far out, as the case may be. The natives get a great number of these seals among a school of herring.

9. Q. What is the usual distance which the natives hunt away from shore?—
231 A. In the spring they will hunt 10 or 15 miles off, later in the season 20 or 25 miles. I have seen them 40 miles from the land.

10. Q. How long does the hunting of the seal on the west coast usually last?—A. Commences in February, or latter end of January, and lasts till the 1st June, when you get more or less seals; you can get a few stragglers in July.

11. Q. And the tendency of the seals is from the south?—A. Yes, following their food fish.

12. Q. You have been down the coast to where you meet the seals in their migration?—A. I have gone down as far as Shoal Water Bay, Columbia River.

13. Q. How do you meet the seals—in large bands or batches?—A. Yes, in schools, from two to twenty in a school.

14. Q. Do they seem to travel in pairs?—A. No, Sir.

15. Q. Do you find in these schools, or bunches, they are all males or females?—A. They are mixed. I remember an instance—I think in 1886—when we got on the coast off Cape Flattery either 104 or 109, am not positive, and out of that there were over 100 bull seals, and the next day we got about 86, and out of that number over 70 were bulls. That was in the year 1886.

16. Q. Would your observation lead you to suppose that your catch would depend entirely upon the group of bulls or females as to which your catch would be composed of principally?—A. As we get amongst them; yes.

17. Q. But taking one year with another—from 1886 to the present time—have you seen any more females killed than of bulls?—A. No, Sir. I think we have got about three males in five, and when we get up about the Bank, about Middleton Island, I think they will average more males than females.

18. Q. When you strike the seals on the coast about 40 or 50 miles from shore, do you find a large proportion of them sleeping?—A. They are generally sleeping. The Indians get none but sleeping seals. I have never been working with Whites.

19. Q. The natives approach the seals very close?—A. Yes; and he comes to the leeward of them, and if there is any sea on they get into the trough of the sea and make no noise. If he went to windward the seal would scent him, and get away.

20. Q. When he gets close enough he throws his spear, and seldom misses?—A. Yes; he don't miss one in ten.

21. Q. And when once his spear is fastened, the seal never gets away?—A. No.

22. Q. If an Indian loses more than what you say, he would not be a good hunter?—A. No good at all. It would not pay to "pack" him.

23. Q. Do the Indians ever shoot?—A. Sometimes. They never shoot if the seal is sleeping.

24. Q. Does that percentage of loss apply to the sleeping seals only?—A. Yes.

25. Q. You mean by "loss"—what?—A. By sinking.

26. Q. If the seal is wounded so it gets away, you don't consider it lost?—A. No.

27. Q. If speared and wounded, and scurried off, you don't consider it lost?—A. Oh, no; not lost.

28. Q. The Indian hunter is very close to the quarry, and rarely misses his aim?—A. Well, he will get within 25 or 30 yards of it.

29. Q. Have you noticed any marked difference in the manner in which the females carrying young travel as compared with the males?—A. The only difference I could see is that they will travel very fast for a little distance, and then turn up and rest.

30. Q. I mean, do they sink their bodies more?—A. No; they do not.

31. Q. Do you think that the female is more shy than the male, that is, those "with young"?—A. No; I think they are not any more shy. The female is always inclined to be sleepy. The male is always on the watch, and will rise till his head and shoulders are out of the water.

32. Q. One hunter has said that the female lies deep in the water, exposing only a portion of her head?—A. I have never noticed that. When lying asleep one-half of the head is under water.

33. Q. Then you will say that the percentage of loss of the Indian hunters is not more than how many in the hundred?—A. Not more than one in ten; not more than 10 per cent.

34. Q. You say you never hunted with white men until this year?—A. No.

35. Q. If any person made a statement that there is a greater amount of loss than what you say, you would not regard it as correct?—A. I would say it was not correct, with Indian hunters.

36. Q. Your statement is based upon actual experience?—A. Yes.

37. Q. In going down the coast in the spring, in February, March, and April, have you noticed that females are more plentiful than in the following months?—A. I do not think they are.

38. Q. But as they come from the south, you think they are not?—A. Between January and June, and between the south and the Shumagin Islands, have you noticed any time or place where there were any more females killed than others?—A. I think in May, I have noticed one thing: you will not find, take one in ninety, you will never find a female pup. Where the female young go to is something that the Commissioners ought to have found out before they came down from the sea.

39. Q. It has been stated that the Indians say there is no such thing as a female grey pup?—A. I have never seen one yet, and cannot account for it, unless the females go one way and the males another.

40. Q. Among all yearling grey pups, there has never been any one known to have found a female?—A. Yes, it is a fact. I have heard a great deal of talk of females having young on the kelp, too, but I don't think that is so. Some hunters report of seeing pups off Middleton's Island, but I think that is impossible.

41. Q. Have you ever seen them cut a pup out of the female seal?—A. Yes; and I have seen the pup so cut out walk or move about the deck of the vessel, and I have tried to raise it. I have also thrown it into the water, and have seen it swim about like a young dog; I have seen it keep afloat for fifteen minutes, as long as the
232 vessel was within sight. On the islands, the mother seal will take the young and force them into the water to teach them to swim. They will never take the water freely themselves for from six weeks to two months.

42. Q. You think they will swim 50 yards probably, or 100 yards?—A. Yes; but don't think they could live continually in the water if they were born in it.

43. Q. When you strike the seals on the west coast, what would you say was the usual distance per day that the seals travel?—A. That is impossible to say; it depends upon their food.

44. Q. That is, they linger longer over good food than otherwise?—A. Yes; I remember in, I think, 1888, where an Indian threw his spear at a seal, and his line broke; it was near the Shumagin Islands, and he took the same seal the next day—we lay-to all night—and he recovered his own iron spearhead. That might show the distance they move in, say, a night, because it did not travel far.

45. Q. When you lower your boats two Indians go to a canoe?—A. Yes, and both paddle.

46. Q. The Indian in the bow keeps his spear right before?—A. Yes.

47. Q. And he throws it at the animal, and strikes it where?—A. It makes no difference where they are hit. They try when shooting to hit in the head.

48. Q. When a seal is struck, or wounded, what time does it require to heal?—A. It heals very rapidly.

49. Q. What time does it require to get the seal aboard after it is speared?—A. Not more than two minutes when they spear, and not as long as that when they shoot it.

50. Q. What is the usual length of the sealing-boat?—A. About 20 feet.

51. Q. And the canoe?—A. About 22 feet.

52. Q. Is it not a fact that sealing in these small boats in the stormy spring months is a very hazardous undertaking?—A. Yes.

53. Q. It is commonly reported that our seal-hunters, both Whites and Indians, are more expert than any others on the coast?—A. That is so. They are the most expert.

54. Q. It is said also that unless the weather is very tempestuous nothing will retard them?—A. Yes; they go out every chance they can get.

55. Q. The loss of a full-sized skin meant the last two years how much to the hunter?—A. About 3 dollars per skin.

56. Q. What is the largest number which you ever saw an Indian canoe bring aboard in one day?—A. Forty-eight in one canoe, in Behring Sea.

57. Q. On the coast, how many?—A. Thirty-four; that is over the average.

58. Q. In leaving the schooner, how far do the hunters, both Indians and Whites, go?—A. They go as far as 10 or 12 miles, sometimes 15 miles, from the vessel, till they can just see the tops of her sail.

59. Q. And this in pretty rough weather?—A. Yes; pretty rough. It might be smooth when they go out, but it often comes on rough before they can get back.

60. Q. In following the seals up the coast in February, March, and April, and May and June, where do you begin to get them in larger numbers?—A. Off Queen Charlotte Islands.

61. Q. At this time, are the females in advance of the males, seemingly hastening to the sea?—A. They get through as soon as they can, the males in advance of the females—they haul out first.

62. Q. Some sealers think the cows go ahead?—A. The males haul out, and each one gets his batch of females, and as the cows come in they make up their herd of females.

63. Q. Have you ever, when with sealers, heard the percentage of loss talked of?—A. No; I have never heard it mentioned with sealers.

64. Q. You speak from your experience with Indians? Your percentage of loss of 1 in 10 would be based on actual experience with Indian hunters?—A. Yes; 1 in 10.

65. Q. You have stated that in the month of May you think there would be more females than in the other months of the season? At that time what part of the ocean would you be?—A. Up off Queen Charlotte Island.

66. Q. You have also stated that the more plentiful the food, the slower the seals travel.—A. Yes; they stay longer where the food is.

67. Q. At the end of any of your seasons, have you actually counted the number of females you had in your cargo?—A. I have never done so.

68. Q. Have you any idea of your last year's catch, what proportion of females you had in the coast catch?—A. I think there would be about 3 males in 5—3 males to 2 females.

69. Q. That applies to the coast catch only?—A. Yes; up to Kodiak.

70. Q. In the Behring Sea, what proportion would it bear?—A. I think about 4 males in 5—4 males to 1 female.

71. Q. Were you in Behring Sea last year?—A. The vessel was. The way I account for getting so many males was, during the beginning of July and August, when the females would be ashore nursing their young the greater part of the time.

72. Q. At any time in Behring Sea, what has been your nearest point of hunting to the seal islands?—A. I have never been closer in hunting than 30 miles—usually 30 to 90 miles off. We got blown in there once, the only time I saw the island; we were within 10 miles of them then.

73. Q. You never saw or heard of any schooners, or spoke any schooner, who made a boast of raiding the islands?—A. None belonging to us. I heard of the "Webster," "Mollie Adams," the "Hamilton Lewis," and the German schooner "Adèle" raiding the islands.

74. Q. All these were American schooners?—A. Yes; except the "Adèle."

75. Q. There is no doubt, then, among sealers, that these vessels did actually raid the islands.—A. It has been commonly reported, and I have no reason to disbelieve it.

76. Q. Did any of those vessels at that time belong to Victoria?—A. No; they did not.

77. Q. Can you advance any idea as to when the seals leave Behring Sea?—A. To the best of my knowledge, about the middle of October.

233 78. Q. Is it the accepted idea that those seals which leave Behring Sea in the fall are the same that return in the spring?—A. That is my opinion.

79. Q. You have never heard at any time any inducement ever offered by a captain or sailor from Victoria to ship men or to perform any work with the intention of raiding those islands?—A. Not from a Canadian vessel.

80. Q. It is a fact that every ship-owner and master of Canadian vessels has deprecated the raiding of the islands, that is, have never agreed with it?—A. They do not agree with it at all. Every one I have spoken to are very well satisfied to go into the sea and get their catch legitimately.

81. Q. You think there is ample field for hunting seals without raiding the islands?—A. Yes, I do.

82. Q. Is it your opinion, Captain Laing, that, with the increased number of schooners here and in San Francisco, there will be any material injury to the sealing industry?—A. I do not think so.

83. Q. From observations made last year, you are quite of the opinion that the seals were more plentiful than you had ever seen them before?—A. They were more plentiful last year, 1891, than the year before, 1890.

84. Q. Is there any way you can account for that?—A. None whatever, unless it is the same as with any species of fish; some years you get more than others. There is no accounting for it.

85. Q. Referring to the number of females caught in the spring, there are quite a number of the female seals barren, or have never borne young? You have noticed it?—A. Yes; some are barren that have had young, and others that have not borne.

86. Q. When you speak of the proportion of females killed, you mean the barren cows as well as those that are bearing young?—A. Yes.

87. Q. Have you formed any idea of the general average or percentage of females carrying young killed in April and May?—A. I could not form any idea.

88. Q. Nor of barren cows?—A. No, Sir.

89. Q. Would you hazard a statement that all the females, both bearing and barren cows, were certainly less than the male seals taken?—A. Yes; certainly less in number.

90. Q. If any one were to make the bold statement that for every male seal killed there is a female killed, would it be correct?—A. That would not be correct.

91. Q. You have not heard any estimate of the percentage of barren females as compared with the bearing cows killed?—A. There are less of the barren cows killed in the spring than there are in the fall. I don't think that they go as far south as the cows that bear young.

92. Q. You say that in Behring Sea the males preponderate?—A. Yes.

93. Q. You cannot account for this, you say, except it be that the females are all ashore bearing young?—A. The males we get in the sea are all 3- or 4-year-olds, which the old wigs would not let ashore at all.

94. Q. Are there any "rookeries" along the coast of any extent?—A. I have never heard of one this side of the Shumagin Islands.

95. Q. Year after year, hunting, then, do you find them travelling along the same course?—A. Yes, where their food is, from 15 to 35 miles out.

96. Q. Your opinion is that the percentage of loss as compared with those hit would not exceed 10 per cent. with Indian hunters?—A. How do you mean lost?

97. Q. You say a seal hit and not killed is not lost if it escapes?—A. Yes.

98. Q. Then the proportion of loss in proportion to those killed is about how much—10 per cent.?—A. It does not exceed that.

99. Q. In the number killed during the different months of the season, what is the proportion of males to females?—A. Three males to two females.

100. Q. As to the abstention of Canadian sealers from raiding the seal islands, you are quite positive that from your knowledge of sealing-vessel owners and masters, you give it as your direct opinion that no Canadian sealers ever raided those islands. You would say so upon oath in Court?—A. They never did to my knowledge.

101. Q. If such a thing had been attempted, it would, as a matter of fact, have leaked out?—A. Yes; it stands to reason the crews would have been unable to keep it to themselves.

102. Q. They would tell it either to their associates on board or after getting ashore?—A. They could not keep it.

103. Q. After the hunters get aboard at night, they usually recount whether they lost any seals, and in speaking of their loss it would mean those seals that would sink, not those that escape?—A. If they lost any, they would not tell it at all, but if they sunk any, they would speak of it.

104. Q. You are at present a ship-owner, Captain Laing?—A. Yes.

105. Q. You have had great opportunities of hearing from all sources matter relative to the seal fishing?—A. Yes.

106. Q. Has it been noticed that the skins taken last year in the Behring Sea were smaller than usual?—A. About the same general size.

107. Q. Is it generally known that the seals caught on the Copper Island are better than the average?—A. I have never seen them, but it is reported they are better.

108. Q. It is reported also that seals caught in January, March, and April are better than any in Behring Sea; they say the fur is better?—A. They say so, but I don't know that you can see any difference.

109. Q. It has been said that the fur of the seals caught during the winter and spring months is light? The fur of all animals in cold climates is thicker in winter?—A. I have never noticed that with seals.

234 110. Q. A few years ago it was said that the Behring Sea skins were the best?—A. It has been so reported, but I don't think there is any difference.

111. Q. The "grey pup" of this year will be a "brown pup" next year?—A. Yes; a "2-year-old" or "brown pup."

112. Q. Do the hunters usually follow the grey pups with the same zeal as they do the other seals?—A. They can't tell the difference till they are actually "on top of them."

113. Q. And they are apt to shoot little as well as big?—A. Yes; everything they come across.

114. Q. Were the Indian hunters more successful last year than Whites?—A. No, they were not. It was a "stand off" between them. The only difference is that the Whites will risk more than the Indians.

115. Q. The expensive wages, cost of outfitting schooners, considered, don't you think that 4 dollars per skin a high figure for hunters?—A. It is.

116. Q. How many boats does the average schooner carry?—A. About six and the stern boat.

117. Q. And each boat takes three white men?—A. Yes, a hunter, a boat-puller, and a boat-steerer.

118. Q. The ship furnishes the boat, guns, and outfit?—A. Yes, the whole outfit of guns, ammunition, provisions, wages for the two men, and pays the hunter so much per skin.

119. Q. At the present time, how much per skin?—A. 3 to 4 dollars.

120. Q. With Indian crews?—A. They furnish their own canoe, spears, and outfit; one Indian steers; but the vessel finds them in provisions only. The last two or three seasons some vessels have supplied guns and ammunition.

121. Q. Does the Indian get 4 dollars per skin; does he out of that pay his own boat-helper?—A. Yes, he pays out of his rate per skin. The ship pays the steerer nothing.

122. Q. Therefore, if the Indian crews were as profitable, they are the cheapest; if they get as many skins?—A. Yes, if you can get them.

123. Q. Is the Indian a good hunter, in your experience?—A. Yes, Sir.

124. Q. Bold and intrepid?—A. Yes, when he is in his canoe nothing will scare him. I have seen an old bull seal capsize a canoe, and the Indians would get into it again, bail the water out, and go on hunting as though nothing had happened.

125. Q. Is the Indian lazy, or does he seem anxious to proceed in the hunt from day to day?—A. In fine weather, yes, but when the sea is "choppy" he would usually rather stay aboard.

126. Q. His canoe is not quite so strong as the sealing-boat?—A. No, not quite.

127. Q. Have there been many accidents among the Indians—loss of life?—A. Not since, I think, 1887, when a schooner foundered with all aboard.

128. Q. Do you think that as the years pass along the Indians, as well as the Whites, get more expert in seal-hunting?—A. Yes, they do.

129. Q. Notwithstanding all the ships in the fleet on the ocean, you would adhere to your statement that you don't think there is any noticeable decrease in the number of seals?—A. Yes; I do not think so. If the vessels had been let alone in Behring Sea last year, we would have had a bigger catch than any previous year.

130. Q. Do you think, Captain Laing, if they would cease killing seals on the Pribyloff Islands it would increase the number of seals on the coast?—A. I think it would.

131. Q. If the rookeries were undisturbed by anything, you think the seals would be more plentiful?—A. I do.

132. Q. Have you any opinion to offer as to killing seals on the islands doing more harm than anything else?—A. I think the American people are doing more harm by killing seals and interfering with them on their rookeries or seal islands than we hunters do on the coast.

133. Q. You have never heard of any rookery along the coast?—A. I never heard of one. There is a rookery of sea-lion off Queen Charlotte Island, but I never heard of any of seals.

(Signed) A. D. LAING.

Sworn before me, this 25th day of January, A. D. 1892.
(Signed) A. R. MILNE, *Collector of Customs.*

January 25, 1892.

William Cox, present master of the schooner "Sapphire," of Victoria, called and examined by Collector Milne:

1. Q. You are engaged in the sealing business, Captain Cox?—A. Yes, I have been master of the sealing-schooner "Sapphire" for the last four years.

2. Q. How many boats do you carry in your outfit?—A. I carry canoes and an Indian crew.

3. Q. With the exception of how many white men to navigate?—A. Seven white people I carry for navigating the vessel.

4. Q. The number of Indians?—A. The last two years I have had twenty-eight north to Behring Sea.

5. Q. And how many canoes?—A. Fourteen canoes.

6. Q. Had you more canoes on the coast?—A. Yes, I have had twenty-four canoes while on the coast.

7. Q. When you finally leave for Behring Sea, you drop a number of the Indians, and only take about fourteen canoes with you?—A. Yes.

8. Q. Do you prefer Indian crews to white men?—A. Yes, I do.

235 9. Q. What are your reasons for the preference?—A. Well, I get along better with them for one thing; there is more honour among them than among the average white crew in this business. They don't make an agreement to-day, and break it to-morrow if they see a chance to make a little more.

10. Q. And they don't quarrel among themselves?—A. No; and you can generally trust them more.

11. Q. They are more profitable, too, are they not?—A. Yes, a little more.

12. Q. They furnish their own canoes?—A. Yes, and spears and boatmen; and it is not such a heavy outfit, but their canoes are light and easily broken by the heavy seas.

13. Q. They are better than aboard a large vessel?—A. Yes, but you have to be very careful—the canoes are "dug-outs" and easily shattered.

14. Q. Apart from getting along easier with the Indians, the experience is just about the same as with the white crew?—A. Yes, the skins cost about the same in the end.

15. Q. Do the Indian crews venture out during the stormy weather as much as the white men?—A. Yes, almost as freely. I have had the same crew so long now that they will do anything I wish them to do.

16. Q. Do you take them down the coast?—A. Yes, and up the coast and on into Behring Sea.

17. Q. They spear all their seals?—A. The greater number of them, yes, but sometimes shoot; they spear all the "sleepers."

18. Q. What proportion do you think they shoot?—A. They shoot probably twenty out of the hundred; but I think now the fleet is getting so large there are more wake seals, that consequently they did more shooting with me last year than ever before. They never shoot a sleeping seal.

19. Q. Do you think the seals are getting more shy on account of the larger fleet of vessels?—A. Yes, they are much more shy.

20. Q. Do the Indians approach the seals from leeward?—A. No; the Indian always goes "across on the wind;" he pulls up almost in range of it, and goes across the wind. They have a sort of idea that the seal sleeps with one eye open, hence the way they approach.

21. Q. When they heave the spear, the barb holds fast?—A. Yes; if they strike the seal at all, they cannot lose it.

22. Q. Therefore the percentage of seals killed by Indians and lost would be very small?—A. I would really count it nothing. If they did lose one by the spear pulling out of the blubber it would not kill the seal, as it heals so quickly again.

23. Q. The barb holds them, and they have no chance to sink?—A. Yes.

24. Q. Therefore the percentage of loss is nothing?—A. I would not reckon it anything.

25. Q. The loss they make is only when firing at a travelling seal?—A. Yes.

26. Q. And that loss would be by the animal escaping?—A. Yes.

27. Q. You would not consider it lost, then?—A. No; if not hit in a vital part it is not lost, for the Indian fires at a close range, and there are two in a boat, and almost sure of it before the shot is fired, because they can't sink far before they are right on to it.

28. Q. So the percentage of the seals lost by Indian hunters, "sleeping" and not "travelling," would be how much?—A. With sleeping seals there is no loss. In travelling seals there are none lost, only in escaping. Last year I saw a great number of seals brought in that had been shot before.

29. Q. From personal knowledge and observation, you are satisfied that a flesh-wound made in the seal would heal rapidly and not injure the seal?—A. Yes; the shot seems to strike in the fatty parts or blubber, and does not seem to hurt the animal, as it closes over and soon heals.

30. Q. In the months of February, March, and April, have you seen a marked number of female seals bearing young killed?—A. Yes; in winter there are a number.

31. Q. Does that mean "barren" cows?—A. No; on the coast we get them "with young." I have not seen many "barren cows" out here in winter.

32. Q. During the months of February, March, and April, what would you say was the proportion of males to females?—A. I have only done one winter's sealing, and that winter they would be fully one-half females during February and March.

33. Q. That is, there would be as many females as bulls and grey pups?—A. Yes; I have never seen a female grey pup on the coast. That is a yearling grey female seal; that is corroborated by the Indians. All the yearlings seen by me have been males.

34. Q. That is well known, you say, by the Indians?—A. Oh, yes. They remark this.

* * * * * * *

38. Q. But there is a larger number of males killed than females in April, May, and June?—A. Yes; in those three months we get a larger number of males; bulls from 3 to 4 years old; all about the same size.

39. Q. Your opinion is that the females, after the month of May, hasten on to the Behring Sea?—A. Yes.

40. Q. Now, from the beginning of the sealing season, when you start out this time of year (January), till the time you enter Behring Sea, what is your opinion as to the percentage of female seals, including both bearing and barren cows, killed? What would be the proportion of female seals, including both bearing and barren cows, killed? What would be the proportion of females as compared with the bulls?—A. Right up to the Shumagin Islands?

41. Q. Yes. Would it be 60 per cent., or 70 per cent., or what?—A. Yes, I think it would be about 65 or 70 per cent. of males, and the remainder mixed cows—bearing and barren cows.

42. Q. About what percentage of barren cows?—A. I think about equally divided; about 15 per cent. of barren and 15 per cent. of bearing cows, and 70 per cent. of bulls, would pretty near represent the catch on the upper and lower coast.

43. Q. There is an opinion expressed that a seal pup will not swim; some people say so?—A. I have seen three with their dams in the water on the Alaskan coast.

236 44. Q. How far from shore?—A. 40 or 50 miles from shore, in the month of June.

45. Q. Is it your opinion that they would be born in the water?—A. Yes, or on the kelp. Seals mate in the water, sleep in the water, and I have seen pups taken from the dead mother on the vessel, and thrown overboard and swim about awhile in the water. I have watched such pups swim about for half-an-hour or more. They seemed to have no difficulty in swimming.

46. Q. You have never seen or heard of a Canadian sealing-schooner attempting to raid the Pribyloff Islands?—A. I have never heard of one.

47. Q. If such a thing had been done or attempted it would be sure to be known among sealers?—A. Yes; it would be impossible to keep it a secret.

48. Q. Is it your opinion that our ship-owners and masters have done everything they could possibly do to discourage anything of that kind?—A. Yes; everything.

49. Q. What has been the general distance you have sealed—the distance from the seal islands?—A. From 100 to 140 miles. I was within 80 miles of them last year; that was the nearest I was to them.

50. Q. Of course your men on board would, if they had ever been engaged in such raiding of the islands, certainly have told their fellows?—A. Yes, it would soon have become known.

51. Q. It is well known to all sealers that certain schooners have raided those islands?—A. Yes, during 1889 and 1890.

51*. Q. Do you remember what their names are?—A. Yes; the American schooner "Mollie Adams," "George R. White," and others.

52. Q. Do you remember any other schooner raiding the islands?—A. Yes; the German schooner "Adèle."

53. Q. It was well known that it was a German vessel?—A. Oh, yes.

54. Q. Those American vessels that raided the Pribyloff Islands recruited their crews—where?—A. I think the "Mollie Adams" recruited her crew at Gloucester.

55. Q. In the United States?—A. Yes; she fitted up in Port Townsend, Washington.

56. Q. Did you ever hear of any American vessels fitting out at Sand Point to raid the islands?—A. I do not remember it.

57. Q. Were you ordered out of Behring Sea last year?—A. Yes.

58. Q. By whom?—A. The British steamer "Porpoise."

59. Q. On being ordered out of the Sea, you immediately complied?—A. Yes; I came right away.

60. Q. Did you lower your boats afterwards?—A. I did not. I came right out of the Sea.

61. Q. What month was that?—A. 9th August.

62. Q. Had you not been ordered out, were you in good hunting ground?—A. Oh, yes.

63. Q. Were the seals plentiful at the time you were warned; that is, as plentiful as you had previously seen them?—A. Yes; just as thick as ever.

64. Q. What was your catch up to the time you were warned out?—A. 2,434 in Behring Sea.

65. Q. What was your coast catch?—A. 1,008 on the coast, and 2,434 in the Sea.

66. Q. Had you been unmolested for another thirty days your chances were good for a large catch?—A. Yes; our chances were good for quite doubling our catch.

67. Q. Your principal ground for sealing you found—where?—A. About 100 miles westward of the Islands of St. George and St. Paul. I took 1,000 in four days there.

68. Q. During that time, when you were getting seals so quickly, was your percentage of loss greater there than on the coast?—A. No; they were very quiet.

69. Q. You have stated that, from your personal observation, you think the seals were as plentiful last year as you have ever seen them in Behring Sea?—A. Yes; much more so than I ever saw them before.

70. Q. More so at a distance of 100 to 130 miles from the nearest seal island?—A. Yes.

71. Q. What course would that lie from the Pribyloff Islands?—A. About west.

72. Q. At the time you were sealing there were there any other Canadian schooners in your company?—A. Yes; the "Annie C. Moore," the "Carmelite," and the "Ariel." They had all an average catch.

73. Q. Have you ever heard of the McLeans raiding Copper Islands?—A. Yes.

74. Q. Do you believe they did actually raid them?—A. Yes.

75. Q. Did you hear the story of their going, with three boats of the "Webster" and "City of San Diego" in a crowd, landing at a passage between the rocks and the mainland of the island, and standing there, where the water was swift, and shooting the seals as they passed through?—A. Yes; but they lost a great many. The captain of the "San Diego" said that they didn't get one-tenth of what they shot.

76. Q. It is the prevailing opinion among the sealers that the "J. Hamilton Lewis" was seized for landing on the islands?—A. Yes; the Russians had been watching her. She was seized for actually raiding the islands.

77. Q. You didn't go to the Copper Island side at all?—A. I did not.

78. Q. In leaving Behring Sea, where did you come out through?—A. Through the Four Mountain Pass.

79. Q. After you had been warned out, did you speak any other cutter?—A. I did not.

80. Q. Did you see any seals from the time you were warned out till the time you came through the pass?—A. They were just as thick as ever within 40 miles of the Four Monntain Pass. We were two days sailing through them. It grieved us very much, I can tell you, to sail through seals and couldn't touch them.

81. Q. The Four Mountain Pass is about what longitude?—A. "172 Pass" we call it.

82. Q. But you say there were plenty of seals from the time you were warned up to within 40 miles of this pass?—A. Yes; just as thick as where we had left.

237 83. Q. Will you state in direct evidence, as though in Court, that, as far as your knowledge goes no Canadian sealer, directly or indirectly, ever raided or attempted to raid the seal islands?—A. I have had ample opportunity of learning if such had been the case, and I know of none.

Captain Cox, continuing, said: I didn't take one "bearing" female seal last season in Behring Sea. I have taken a few which were evidently "with milk."

84. Q. What percentage do you say?—A. There might be 5 per cent. of what I took which had had young; there was evidence of having had young; whether they had last year or not I do not know.

(Signed) WILLIAM COX.

Sworn before me this 25th day of January, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Victoria, B. C., February 15, 1892.

SEAL-HUNTING IN NORTH PACIFIC OCEAN AND BEHRING SEA.

Captain Charles Hackett, master and managing owner of the schooner "Annie C. Moore," of St. John's, New Brunswick, being duly sworn:

Q. How many years have you been sealing?—A. This is my fifth year.

Q. You have had reasonable success in seal-hunting?—A. Yes.

Q. You have followed sealing from San Francisco to Behring Sea?—A. I have.

Q. What has been the number of your crews?—A. Twenty-three men all told.

Q. The number of boats your vessel carried?—A. Seven altogether.

Q. You have had every opportunity of seeing seal life?—A. I have.

Q. On the coast did the seals appear to be as plentiful last year as former years?—A. I have found them so.

Q. Please state how the seals travel?—A. As a rule we find the bearing females by themselves.

Q. Did the seals appear more timorous last year than former years?—A. I don't think so.

Q. Are there more seals shot whilst sleeping than travelling?—A. As far as my experience has been that about seven-eighths, that is seven are shot while sleeping to one travelling.

Q. Please state about the average distance that seals are shot while sleeping?—A. From 10 to 15 yards.

Q. What do you consider the proportion of seals lost as compared to the whole that are hit in pelagic sealing?—A. One of my hunters, named Folger, killed over 400 seals during the season, and only lost five seals; the exact number is hard for a master to say, but I believe that 5 per cent. would be the outside.

Q. Captain Hackett, would you consider that a hunter that lost more than five in the hundred would not be a good hunter?—A. I certainly do.

Q. Do you mean by being lost, that is by sinking?—A. When I say lost I mean by sinking.

Q. When a seal is shot in the head you generally get him, and mostly all the seal are shot in the head?—A. They are; and when we shoot them from the deck of the schooner, to lower the boat and bring the vessel to generally is from ten to fifteen minutes; but we always get the seal floating.

Q. From actual observation, then, you would say that the actual loss during the seasons you have been sealing will not exceed 5 per cent.?—A. I certainly say so.

Q. Are there more lost on the coast than in Behring Sea?—A. In the Behring Sea the percentage of loss would not be 5 per cent.

Q. Have you observed in any month a greater number of females than in other months; that is, on the coast have you observed a greater number of females taken during the months of April and May?—A. I have not observed any difference.

Q. What proportion of females were in your catch last year (1890), and also in 1891?—A. In 1890 about one-quarter were females, and in 1891 about half and half.

Q. Would this percentage apply to your catch in Behring Sea as well as on the coast?—A. Yes; the percentage of females in 1890 would be about one-quarter, and in 1891 about half and half.

Q. What was your catch in 1890?—A. About 1,500.

Q. What was your catch in 1891?—A. 2,070 seals.

Q. What proportion of females with pup did you observe taken on the coast during the past two years?—A. About half and half.

Q. What proportion of females with pup did you observe in Behring Sea?—A. In a catch of 1,555 seals in Behring Sea last year I had only ten females with pup; those with pup were taken between the 15th and last of July, and that those females killed with pup appeared to come from the westward and got mixed with groups of other female seals which had their young and were entirely dried up.

Q. Do you find many yearling pups in Behring Sea?—A. No; I have found no yearling pups in Behring Sea; we get what we call the white-belly pups; they are from two- to three-year-old pups, and we get quite a number of barren cows.

Q. What do you mean regarding barren cows?—A. I mean those who have not borne young during that year.

Q. Did you notice if the seals were smaller in size last year?—A. I did not; they were as large as any year.

238 Q. Whilst in Behring Sea last year were the seals as numerous as you have seen them before?—A. They were more numerous than I have ever seen them before.

Q. What age is a seal-skin at its best?—A. I consider at 3 years old.

Q. What has been the distance from the Pribyloff Islands that you were while sealing any year in Behring Sea?—A. From 50 to 100 miles, and was never nearer than 50 miles.

Q. You were warned out of the Sea last year?—A. I was.

Q. Were the seals plentiful at the time?—A. They were quite numerous.

Q. How far were you from land when warned?—A. About 100 miles to the westward of Pribyloff Islands.

Q. Had you not been ordered out of the Sea your catch would have been good?—A. My catch would have been at least 3,000 seals.

Q. Have you ever heard of any Canadian vessels during the years that you have been employed in the sealing industry raiding the Pribyloff seal island in Behring Sea?—A. I have not.

Q. Yould would have certainly heard of it had it occurred?—A. Had that been done, I would have heard it; I am acquainted with all the principal sealing men.

(Signed) CHAS. HACKETT.

Sworn before me this 15th day of February, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Victoria, B. C., February 8, 1892.

Caleb McDougall, master of the schooner "Pioneer," of Victoria, British Columbia, personally appeared, and being duly sworn, doth depose and say:

That this is the third year that he has been engaged in hunting seals in the Northern Pacific Ocean and Behring Sea.

That he has had every opportunity of watching every peculiarity of seal-hunting.

That it is his opinion, from actual observation, that the number of seals lost, as compared with those hit in pelagic sealing, is about one in fifty, that is, one seal is lost to fifty caught.

That the loss of seals is by sinking.

That the greater number of seals are killed while sleeping.

That seals travel in groups, that is, groups of males and groups of females, also of grey or yearling pups.

That in Behring Sea during the year 1890 in one place the hunters would bring 110, and 120, and 130 each day, all males and no females, that is, in that one place, and the greater number of his catch (1890) were male seals, that is, his vessel had 1,100 in Behring Sea, of which 800 were males and the rest females.

That there is no doubt but that the old bull seals drive the younger males away from the islands, and that is the reason why he considers that more males are caught than females in Behring Sea.

That the proportion of barren cows is about one in ten to the bearing cows, that is, there is one barren and ten bearing in Behring Sea.

That since he has been engaged in sealing he thinks the seals are increasing, and that he found the seals in Behring Sea thicker last year than he ever found them.

That it depends entirely upon what portion of the Sea that the vessel is in and striking a band of males or females, but with all vessels in Behring Sea the catch is always more males than females.

That he does not know of any single instance of a British sealing-vessel raiding the seal islands in Behring Sea, and he is quite sure that no British vessel in any case attempted to raid the seal islands. If they had, he would have heard of it.

(Signed) C. McDOUGALL.

Sworn before me, this 8th day of February, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Victoria, B. C., February 1, 1892.

1. Q. Captain William O'Leary, how many years have you been sealing?—A. This is my sixth year.

2. Q. You have been generally successful?—A. Yes.

3. Q. You have had all opportunities of watching every peculiarity of seal-hunting?—A. Yes.

4. Q. What is your opinion of the proportion of seals lost as compared with those hit in pelagic sealing?—A. My opinion is that only 3 to 5 per cent. are lost.

5. Q. Do you mean those who are lost by sinking?—A. Yes.

6. Q. Are there any lost in any other way?—A. Yes; by escaping.

7. Q. What is your opinion of the proportion of females to males taken during the season on the coast?—A. My experience on the coast has been that the females and males are about equal, and of the females there are an equal number of barren cows and bearing cows.

239 8. Q. What is your opinion about the proportion of bearing cows?—A. About half and half, that is, half barren and half bearing cows.

9. Q. In Behring Sea is your catch chiefly male seals?—A. Yes; about three to one; that is, three males to one female.

10. Q. Captain O'Leary, what is your opinion about the increase or decrease of seals?—A. I think the seals were as plentiful last season as I have ever seen them.

11. Q. Captain O'Leary, being one of the oldest sealing captains, do you know of any single instance of a British sealing-vessel raiding the seal islands?—A. I have never heard of one, nor do I believe that any British vessel raided or attempted to raid the seal islands; I would have heard it if such had been attempted.

(Signed) WILLIAM O'LEARY.

Sworn before me, this 1st February, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Victoria, B. C., February 16, 1892.

RE SEALING IN PACIFIC OCEAN AND BEHRING SEA.

Abel Douglas, present master and managing owner of Canadian schooner "May Belle," of Victoria, British Columbia, being duly sworn, in answer to the following questions, says:

Q. How many years have you been sealing?—A. I have been seven years.

Q. You have been reasonably successful in the sealing industry?—A. Yes, I have.

Q. You have followed the seals along the west coast and in Behring Sea?—Yes, Sir; I have.

Q. How many men composed your crew last year?—A. Twenty-one men, all told.

Q. The number of your boats carried?—A. Six boats.

Q. You have had every opportunity of being acquainted with the habits and life of the seals?—A. I have.

Q. On the coast, did the seals appear as plentiful last year as former years?—A. I have seen no decrease; in fact, I saw more seals last year, but they appeared a little shyer.

Q. In Behring Sea, did the seals appear as plentiful last year as formerly?—A. I saw more seals and larger bodies of seals in Behring Sea last year than in any year before.

Q. Did the seals appear more timorous in Behring Sea than formerly?—A. No, they did not, but seemed quite quiet, and not frightened.

Q. On the coast do the females travel by themselves?—A. The females generally travel by themselves; think the males don't travel so far south. We find the males appear more plentiful towards Alaska.

Q. Are there more seals shot sleeping than travelling?—A. Yes, Sir.

Q. What is the usual distance that seals are shot while sleeping?—A. About 40 to 45 feet.

Q. What would be the distance shooting at a travelling seal?—A. About 30 to 40 yards.

Q. Where are the seals usually struck when shot?—A. In the head and neck.

Q. From your long experience, what do you consider the proportion of seals lost as compared to the whole that are hit in pelagic sealing?—A. I am quite sure that not more than from three to five in the hundred, in one year in Behring Sea; out of 216 seals taken by myself, I never lost a single one; and last year I lost seven out of 205 killed by myself; the loss was by sinking.

Q. Having personal experience hunting every year, how quickly do you reach the animal shot sleeping?—A. About five to ten minutes if the seal has been shot sleeping.

Q. Sleeping seals don't sink quickly, do they?—A. Sleeping seals very seldom sink. The loss by sinking is altogether the travelling seals.

Q. Then you would say that the percentage of loss, that is, three to five in the hundred, has been your experience for several years?—A. Yes; it has been about the same.

Q. Is the loss greater on the coast than in Behring Sea?—A. No, Sir; very few are lost on the coast.

Q. On the coast, have you taken a greater number of females in some months than in other months; say, have you observed a greater number of females taken in April and May?—A. No, Sir.

Q. Where do you find the yearling grey pups?—A. Always on the coast.

Q. Do you find many pups in Behring Sea?—A. No; I have only found two grey pups in Behring Sea.

Q. Do you find any brown pups, about 2 years old, in Behring Sea?—A. Very few.

Q. Have you observed in Behring Sea that the females have delivered their young?—A. Yes, Sir.

Q. Do you take any females with pup in Behring Sea?—A. Very few; say one or two in the season. They have all delivered their young before the vessels enter Behring Sea.

Q. Did you observe any difference in the size of seal-skins last year?—A. None; they are the same as former years.

Q. What has been the distance from the seal islands that you usually hunted in Behring Sea in the past years?—A. From 60 to 100 miles generally to the westward.

240 Q. You were warned out last year, and by whom?—A. Yes, Sir; and by the United States ship "Mohican."

Q. At the time you were warned, what distance were you from the seal islands?—A. At the time I was warned I was 115 miles to the north-west of the seal islands.

Q. At the time you were warned were the seals plentiful?—A. I have never seen the seals so plentiful in Behring Sea.

Q. Do you say that had you not been forced out of Behring Sea that you would have had an excellent catch?—A. I certainly would have had a good catch.

Q. Then you consider that having been ordered out of Behring's Sea last year that it has been a serious financial loss to you?—A. It has been a great loss to me and a very great hardship.

Q. Have you ever heard of a British vessel, during the years that you have been engaged in the sealing industry, raiding, or attempting to raid or take seals in any way on the Pribyloff or seal islands in Behring Sea?—A. I have not at any time heard of any British vessel taking any seals from the seal islands.

Q. If any vessel had attempted to do so you would have certainly heard of it?—A. I certainly would; for I am acquainted with all the principal sealing men sailing from this port.

(Signed) ABEL DOUGLAS.

Sworn before me, this 16th day of February, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

Victoria, B. C., February 20, 1892.

RE SEALING IN PACIFIC OCEAN AND BEHRING SEA.

Laughlin L. McLean, present master of the Canadian schooner "Favourite," of Victoria, British Columbia, and master of the same vessel for the past seven years, personally appeared, and being duly sworn, in reply to the following questions doth depose and say:

Q. Captain McLean, you have been master of the "Favourite" during the past seven years?—A. Yes; for seven years.

Q. You have been reasonably successful in the sealing industry?—A. Yes; I have.

Q. You have had every opportunity of observing the seals and seal life?—A. I have had every opportunity.

Q. What number of men compose your crew usually?—A. From thirty to thirty-two men, all told.

Q. How many Whites and how many Indians?—A. Seven Whites and about twenty-five Indians compose my crew.

Q. Have had Indian hunters every year?—A. Every year but one, that was 1887.

Q. Do you prefer Indians to Whites for hunters?—A. I do.

Q. Were the seals to your observation as plentiful last year as former years?—A. They were more plentiful.

Q. Were they as plentiful on coast?—A. Yes.

Q. Were the seals as plentiful in Behring Sea as in former years?—A. In my experience I have never seen the seals as plentiful in Behring Sea.

Q. Did the seals in Behring Sea appear to be more timorous?—A. No; they did not; but appeared quite tame.

Q. From your long experience, what do you consider the proportion of seals lost as compared to the whole number that are hit in pelagic sealing?—A. I would say with Indians about one in ten, and with good white hunters about 5 per cent.

Q. Have you observed in any months more females than males?—A. No; but I think there are more males in the month of April on the coast.

Q. Did you have more males than females in the coast catch?—A. Yes; I had more males than females on the coast.

Q. What percentage of males to females did you have in Behring Sea last year and any year?—A. About half and half, and every year about the same.

Q. Did you notice that the females taken in Behring Sea had delivered their young?—A. Yes; they had all their young some time before that. They give up their young about the end of July. We never get them with pup after July.

Q. What proportion of females taken in Behring Sea are barren?—A. About 5 per cent.

Q. Do you ever find yearling or grey pups in Behring Sea?—A. No; we never find them.

Q. Do you find brown pups (2 or 3 years old) in Behring Sea?—A. We find a few; not many; occasionally one or two.

Q. From your long observation, do you think that the females taken in Behring Sea have remained long enough with their pups so that they care for themselves on the land?—A. Yes, I do.

Q. You mean by barren cows those that have not borne that year?—A. Yes, I do.

Q. In Behring Sea do they all travel together, that is, males and females?—A. They are pretty well mixed up.

241 Q. Then you say that, including barren cows, that the percentage of all females taken in Behring Sea is about equal to the males?—A. About that, and no more.

Q. Do I understand you clearly to say that the catch on the coast was mostly males?—A. Yes, I do.

Q. Captain McLean, would you please say in what proportion the males were to the females in your catch on the coast?—A. About two-thirds males, that is, two males to one female.

Q. Did you observe any change in the habits of the seals last year from former years?—A. On the coast I do not observe any difference, but in Behring Sea I find the seals further from land; a few years ago I found them 25 or 30 miles from land, that was our favourite fishing ground; but the last two or three years my best catches have been from 140 to 150 miles from land.

Q. Have you ever known or heard of any British vessel engaged in the sealing industry raiding or attempting to raid or to take seals in any way from the Pribyloff or seal islands in Behring Sea?—A. I have not heard that any British vessel in any year attempted any such thing, as I know all the principal men engaged in sealing, and I would certainly have heard it if such had occurred.

Q. You have heard of some American vessel raiding the seal islands?—A. Yes, two years ago.

Q. You were ordered out of Behring Sea last year?—A. Yes, by Her Majesty's ship "Porpoise."

Q. Were you in good hunting ground when warned?—A. Yes, the seals were very thick.

Q. Had you been let alone your catch would have been very good?—A. Yes, my catch would have been an extraordinary good one, for I had 2,183 when ordered out, and I had a full month to go, and my catch if let alone would have been at least 3,500 seals.

Q. On your way out did you observe that the seal were plentiful in Behring Sea?—A. They were thick all the way out to the pass coming out of the sea, and it was very annoying to see so many and not be able to touch them.

Q. Where did Her Majesty's ship "Porpoise" speak you and order you out?—A. In 173° west longitude, about 135 miles from nearest land.

Q. Then you consider that being ordered out last year has been great financial loss and hardship to you?—A. I do, most certainly; my vessel was equipped for a voyage two months longer.

(Signed) LAUGHLIN L. MCLEAN,
Master, Schooner "Favourite."

Sworn before me this 20th day of February, 1892.

(Signed) A. R. MILNE, *Collector of Customs.*

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